Abstract
This short paper draws from and compares two projects involving the authors in which digital and analogue reproduction technologies were used in collaborations with artists. In the first, artists were recruited to participate in iPad painting workshops and try out populist painting apps. The second project involved the earliest print technology, the woodcut. Coloured inks, rollers and wooden spoons were utilised by the first author in her role as "master printer", "pulling" limited edition prints—by hand—from blocks of incised wood in commercial fine art production.

Digitisation facilitates massive and instantaneous copying and distribution without any loss of quality. By limiting reproduction and dissemination of prints, each one becomes more collectable and valuable. The paper considers how the inherent material degradation of traditional printmaking is a condition to which digital processes might aspire.
iPad Painting

A series of provocatively explorative iPad painting workshops were run in which a group of early career artists acquainted themselves with the tablet device and art-making apps. Heather considered the iPad a "diarrhoea machine", critical of how the technology's wide take-up popularity, convenience, and ease-of-use was generating endless flows of "simulated paintings" [4]. On the whole, the artists generally agreed that the iPad and art apps were indeed easy and in the context of the shared workshop, enjoyable to use. But they also expressed anxiety concerning the technologies' ethical and aesthetic authenticity and cultural legitimacy. To explore the device's potential beyond these short bursts of activity, one participant, the painter Charles Stapleton, agreed to adopt use of the iPad and the app Brushes [5] as an extension of his painting practice over several months.

Charles' "Painting #1 (Digital Finger Painting) variable duration" (Figure 1) was the result. It exploits the Brushes app's function of auto-recording every mark made, so that on its completion, the painting's development can be played back durationally as an animation. Charles produced dozens of digital paintings, one on top of the other, in his failed attempt to "try to break" this record and replay function.

The authors have discussed elsewhere how similar automated functions in some new technologies document and simultaneously reveal creative production [3][1] in a process analogous to system-logging in computing. A new genre of YouTube video, utilising these stop-motion-type processes has appeared, often presenting speeded up portrait painting (e.g. [9]). In a subsequent exhibition at Culture Lab, Charles' work was presented on a (non-interactive) "retro" style gallery monitor. In the absence of any pause facility, a linear non-interactive video work was created to last an hour. This was then set to loop on auto-replay, suggesting a "never ending painting". Charles fore-grounded the additive quality of material painting, with each new series of marks repeatedly obscuring those beneath.

Figure 1. Stills from Charles Stapleton's® "Painting #1 (Digital Finger Painting) variable duration", 2012, made using the Brushes app on an iPad.

Figure 2. Installation shot at Culture Lab, December 2012, Charles Stapleton®.
Hand-made Reproductions
During commercial printmaking activities in the 90s, the first author and painter Ken Kiff would make trips to the wood yard to select blocks with suitable grains and densities for printing (Figure 2, top). In his studio, the artist drafted out his image in chalk, incised his design into the wood, and rubbed in coloured paints to help visualise the final palette. In the print studio, the rubbing action of the wooden spoon on Japanese paper laid over the inked block transferred image to paper. The process sometimes took more than two hours: each colour selectively applied, with opacity built up by peeling back the paper, re-inking and then re-rubbing. Over the course of editioning, the striated surface of Douglas-fir took on a polished patina representing a shiny reversed image of the paper prints. The once defined grain slowly degraded through liberal use of white spirit and repeated rubbing. The complete edition of thirty-five prints documented this incremental loss of material clarity. Subtle changes were evident to the printer and artist on scrutinising the final suite of images in preparation for signing and numbering. Individual prints were indeed, each unique, while the limited number of reproductions in the edition conveyed a measure of scarcity and value. The works were then presented, for sale in exhibition at Marlborough Fine Art.

Magnifying Art’s Imperfection
Twenty years later, digital technologies have been developed which facilitate the online display of gallery and museums collections. Viewers may zoom in to inspect works at high magnification. Kiff’s prints occasionally come up for auction at companies such as Christies [6]. The auction houses employ the zooming technologies to facilitate close inspection online of individual lots [7]. This level of magnification makes an artwork’s material imperfections more noticeable, the loss of clarity in some of the later edition numbers more apparent. It is generally images from those editions that sold out at or soon after exhibition that come up for resale. Close magnification emphasises imperfections, but also conveys the uniqueness of what are also copies.

Discussion and Conclusion
The process of reproduction in the second study was inherently imperfect, with the quality of print degrading over time and in turn, across the sequence of images. But it was this degradation that adds value to copies, making the prints both collectable and valuable. Each was subtly different to another and so unique. The editions were strictly limited by the finitude of the materials, not only the custom of numbering each print.

Digital technologies, such as those used by Charles, make images very easy and quick to make. The resulting data files are instantaneously reproducible and typically widely distributable. These reproductions of the work, from one computer to another, are perfect. For exhibition, Charles attempted to construct a "bespoke" version of the Brushes file, using a form of presentation that retreated to earlier regimes of art display in an attempt to raise cultural legitimacy. But this, indeed, no digital file nor edition can be "limited", because computer data can be copied without any diminution in quality and without limit.

It is possible to simply ignore the infinite reproducibility of digital files as new online contemporary art sales websites like [s]edition [7] do when they claim to offer “limited digital editions” [2]. What then might a digital

Figure 3. From top: Ken Kiff's Douglas-fir woodblock surface; Kiff’s "Tiger" as reproduced on Christies's website, and in close-up.
edition look like? Perhaps there are more opportunities for design in exploring degradability as an inherent condition of creative production for the digital to aspire to.

References