

(Re)shaping the Art School: Transforming the academy for the future of electronic arts

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Generative AI has been widely available for only three years but has already caused massive changes to creative production and employment patterns, effects which will increase in intensity as models are improved. This paper looks at how art colleges and universities need to change their programmes so that future graduates are equipped for the future. The paper briefly considers the features of GenAI and then analyses production models and creative decision-making in the creative industries assessing the capacity for roles to be replaced or affected by technology. It then looks at the role colleges and universities have in preparing students for work and then considers the changes in content and course structure that will be needed for graduates to thrive in the digital arts sector of the future. The paper concludes with a set of recommended priorities for programme-design for graduate success in a generative AI future.

Generative AI. Employment trends. Digital arts. Creative industries. Higher education. Programme design.

1. INTRODUCTION

Over the past three years, there has been a great deal of attention on what the effects of AI, specifically generative AI, will be for artists, for employment and how AI use fits within the longer narrative of the entwined relationship between technology and artistic practices. While Artificial Intelligence is a field with a fairly long history (in digital technology terms), the presence of AI in popular debate really dates from the release of ChatGPT in 2022. In general discourse, AI now is considered almost entirely as generative AI (GenAI or just AI), despite this being a sub-category not even identified in earlier surveys of Artificial Intelligence (e.g. Cawsey 2000). Over the same, short period of time, the development and adoption of AI tools has been extraordinarily rapid – from the public release of ChatGPT in 2022, able to generate relatively short texts, to the situation today where seemingly, every form of digital artefact can be produced by a generative AI. Over the same period, the quality of the materials produced has increased, from the point where identifying AI use was trivial (too many fingers, texts that exhibited formulaic structures etc.) to a growing and well evidenced (Ibrahim et al. 2023, Scarfe et al. 2023) realisation that it is only a matter of time before any reliable detection of AI use will be impossible.

This disruption and debate have been reflected in universities and art colleges too – where reactions have mainly been confined to, ‘how, in an AI age,

can we ensure the continuing integrity of our assessment instruments’? This is obviously a vitally important topic, but it is not the area that this paper explores. Rather, while acknowledging that the value of institutions offering programmes of advanced study is not solely concerned with their ability to prepare students for participation in a profession or trade, this paper accepts that we nevertheless do have a responsibility to consider the future professional creative environment our students will encounter after they have left us and that we thus need to adjust our courses in response to the conditions and circumstances that will operate.

There is a further responsibility we have – to the global creative industries themselves. As well as preparing graduates for future careers, we also seek to transform those industries they will enter. If we are to have the future we want, we must ensure that, alongside technical and creative training, our students are instilled with a strong sense of principle – of the ethical, critical and legal frameworks which underpin and are reflected in a socially beneficial creative media industry.

This paper will thus examine the consequences of future widespread generative AI adoption for institutions of higher education (those offering degree-level courses) in terms of content and structure rather than looking at assessment practice. If higher-level study is still valuable in an age of AI

(and I will suggest it very much is), what might the features of creative digital programmes be for courses aiming to equip graduates for their future professional digital arts practice? It will begin by briefly examining the features of Generative AI and then look at the nature of creative work and modes of production in the digital arts.

1.1 What is Generative AI?

Generative AI is a system which can, in principle, generate any kind of material which can be described or encoded digitally – text, images, sound, video, instructions for 3D printers and pattern cutters. Developments over the past 3 years have shown actual implementations catching up with the theoretical range of applications at a surprising rate (Sengar et al. 2024). GenAI processes are basically enhanced copying and pasting together with an additional, transformative capacity. They work using massive libraries (sometimes comprising billions of items) of digital artefacts, some of which (the training set) will have associated text descriptions. The source of these collections is one of the key ethics problems with GenAI. While some models use an ethically-sourced data set, many (most?) of the current leading GenAI models were trained on data that was collected without permission – from social media, the internet, sound cloud, art station, Instagram, Flickr etc..

It's important to understand that what generative AI is copying is not so much the image, or the sound or the text, but rather the *creative decision behind the selection of that image or text or sound*. GenAI is based on libraries of ideas. It doesn't know about art or design, but it does know what humans have done in millions of circumstances and, if you describe the circumstances you are interested in clearly, it can give you suggestions of what skilled humans would do. It is the rush to collect, securely store and then monetise creative decisions that explains the vast sums being spent by companies on GenAI. The 'winners' will own the recipes behind all the artefacts ever produced by humans...

"what we are witnessing is the wealthiest companies in history (Microsoft, Apple, Google, Meta, Amazon ...) unilaterally seizing the sum total of human knowledge that exists in digital, scrapable form and walling it off inside proprietary products, many of which will take direct aim at the humans whose lifetime of labor trained the machines without giving permission or consent." (Klein 2023)

2. CREATIVITY AND CREATIVE PRODUCTION

Creativity is variously defined, although most accounts follow Arielli and Manovich (2022), "the ability to be creative, that is, to generate novelty" in prioritising the capacity to produce something 'new'.

Boden 2007 differentiates between individual (P-creativity) where the novelty is that of the person and historical creativity (H-creativity) where something has never been done before (one can wonder whether, in an age of pervasive networked media, this distinction might be increasingly eroded). Many other authors generally follow this requirement for the production of novelty, either alone or combined with other qualities. Other approaches to a definition of creativity focus on the thesis that it is (or is not) an algorithmic process, or on the capacity of creative production to provoke transformation or to communicate emotions or other qualities.

A detailed examination of competing theories of creativity is beyond the scope of this paper but if we look at activity across the digital arts sector, it is clear that many processes labelled 'creative' are not necessarily wholly aligned with the definitions of creativity discussed above; novelty, in practice, is often much *less* important than one might suppose. However, there is another factor which needs to be looked at as well; what are the actual characteristics of the 'creative' decision-making involved in creative activity?

Looking across the range of contemporary professional creative activity, one can identify three different broad paradigms of contemporary production:

- (i) Creative digital work which can be segmented into a series of steps, each of which is completed by a single person (who may be responsible for many, or all of the stages involved) – a concept sketch, a character design, a song, a photograph, a blueprint, a pattern, an interior design, a 3D model etc.
- (ii) Creative production which requires skilled use of physical processes and materials – sculpting, installations, jewellery, physical modelling, ceramics, physical props for performance...
- (iii) Creative production which requires synchronous, team-based activity – film and TV production, large-scale casting or construction, sound engineering...

Of course, a production process often includes more than one model of production, which in turn strongly suggests that the effects of GenAI on the collection of activities within the creative industries will not be uniform but will rather be radically different for different sectors according to the particular mix of production models involved. By looking at the nature of GenAI tools (and extrapolating quality and implementation trends), one can observe that by their nature, the different types and structures of creative activity will be affected to differing extents – type 1 will be most affected and type 3 the least with

type 2 occupying a middle position depending on the extent of human dexterity and mechanisation. Most significantly, the potential for return on investment will shape all future applications of GenAI with larger, more expensive, processes affected to a greater extent. For example, film production is a highly complex process involving many people, expensive spaces and equipment but the high costs involved in physical production mean that the incentive to generate rather than film footage is correspondingly attractive. With the recent releases of increasingly capable video generating AI systems such as Sora (<https://openai.com/sora/>), announced in February 2024, investment in physical production facilities is being questioned (Milmo 2024). While there are differences in the extent of change brought about by GenAI adoption, overall the emerging pattern is clear:

“Automation is expected to drive changes in people’s ways of working, with the proportional share of tasks performed solely or predominantly by humans expected to decline as technology becomes more versatile.” (WEF 2025:26)

2.1 How much creativity?

Figure 1 represents creative activity (in terms of creative decision-making) across all areas of the creative industries where each decision is mapped in terms of how important it is (‘stakes’) and how novel a solution is required (‘originality’). The depth of colour represents the frequency of activity where a deeper hue represents a greater concentration of decisions. The importance of a creative decision may be due to the potential financial implications, but safety and legal compliance can also be factors (e.g. in fields such as Architecture). The uneven distribution along both axes is explained by the Pareto principle (here relating effort and design outcomes), suggesting that 80% of desired outcomes can be realised with only 20% of creative effort (Gittens, Kim & Godwin 2005) combined with the widespread adoption of ‘good enough’ design management principles.

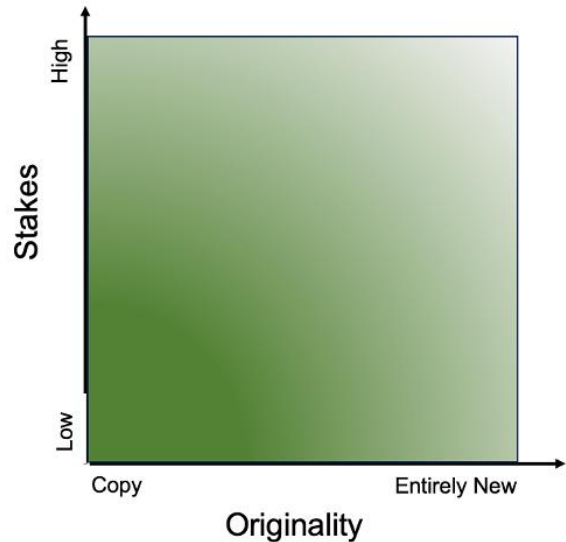


Figure 1: Creative decision-making frequency map

‘Originality’ here means the extent of difference to extant *similar* artefacts. This is more than just surprise on encountering an artefact which one of Boden’s key indicators for identifying when a creative act has occurred (Boden 2007); innovative creative products have to be both unexpected but at the same time convincing or valued. Looking at creative activity it’s initially surprising how little originality is actually required in much digital arts production. Genre, conventions, dissemination formats, branding, and stylistic reference etc. are all powerful forces that, for most creative activity, limit the extent of ‘originality’ they will be required to employ, as Boden puts it,

“Within a given conceptual space, many thoughts are possible, only some of which may have been actually thought. Some spaces, of course, have a richer potential than others.” (Boden 2007:86)

Animation, music, games, film, architecture, screen and print design (amongst many others) all mostly operate towards the left-hand side of the diagram above with only a few practitioners or productions occasionally producing work that is genuinely significantly divergent from received ideas about practice, scope and function.

‘Fine Art’ approaches to production might be thought to embody, by their nature, high levels of creativity, but even here, received (and powerful) ideas of function, genre and tradition together with easy access to extensive bodies of work by existing artists, serve to constrain digital artists’ ambitions (Of course, one also needs to remember that many artists, e.g. the Oulipo group, composers of serial music, Dogma 95 film makers, etc.) find that setting constraints *stimulates* their creativity, a counter-intuitive effect that supports the argument that the capacity for surprise is an incomplete explanation for

creative processes.. If this, thankfully, does not always entirely succeed in preventing the emergence of genuine innovation, it introduced a friction on originality, a general cultural expression perhaps of Manovitch's observation that in the digital age, creativity can be seen as synonymous to selection from a menu of options (Manovitch 2001:123).

Manovitch (2023) has also pointed out that copying has *always* been a key part of creative activity, and he sees AI as essentially a continuation of existing creative traditions. Generative AI is disruptive then not because it is essentially different to precursor creative production processes but because on the one hand it changes who can carry out those creative processes while at the same time it reduces the effort required to achieve a given scale of outcome.

In most organisations different people undertake creative activity in different parts of the frequency map presented in figure 1. Juniors tend to perform activity towards the bottom left, seniors towards the top right but these two groups' roles will be differently affected by GenAI. Those tasks currently undertaken by entry level or junior staff (low stakes, low originality) will increasingly be done by non-specialists using GenAI systems, an effect that can already be clearly seen in Graphic Design (WEF 2025:26) and confirmed experimentally by Eisenmann et al. (2025).

Where the stakes are high for a creative activity, or the requirements are for real originality, that activity is less likely to be carried out (entirely) by an AI tool but the increase in productivity engendered by Gen AI tools will mean that while skilled people will still be needed since domain specific knowledge does lead to more effective results with gen AI, there will be fewer of these jobs overall. Intriguingly, Eisenmann et al. found that currently, AI "performs on par, if not better than humans in some cases, but does not surpass the best human results" (Eisenmann et al. 2025:13).

3. VOCATIONAL TRAINING AND THE UNIVERSITY

The idea that completion of a university course can be used both as a proxy for suitability for employment and as a partial preparation for specific roles is long established. In the UK, the 'Professions' are accepted as a set of respected and skilled positions which require a degree for entry – "doctors, teachers, lawyers, accountants, architects and civil servants" (Cherrington 2019). Since the last decade of the twentieth century, in parallel with the large expansion of university provision, the link between university education and vocational preparation and

selection has been expanded both in scope (more job roles becoming identified as requiring a degree) and in significance with the vocational aspects of university provision becoming so significant that graduate employment has become one of the main metrics for judging the value of a degree course in the UK.

"From the perspective of those paying for higher education (HE), namely the state and graduates, there is concern about whether a degree offers a pathway to labour market success." (Vignoles 2020)

3.1 Course content and the future of production

The production of basic digital artefacts (those that use the first model of production described above) will fundamentally change. Instead of creating these assets through a direct interaction with digital data using an authoring or modelling tool, production will become an activity where the creator creates a text which sets out what they want, a prompt. Prompts specify how an artefact should be read or recognised by its audience, describe other artefacts that it should relate to (both historic and contemporary), and give the technical and other specifications imposed by its proposed methods of dissemination or operation (Welsh 2023). Rather than direct manipulation, creators will craft narratives about the uses, references and contexts a proposed artefact should exhibit and hence the skills requirements will shift from those of production to critical evaluation and contextual awareness.

Some readers may recognise that we already teach these things, and we do so, not in the technical classes or studio workshops, but rather in those parts of programmes that are devoted to theory and critical skills. It is perhaps ironic that these 'academic' skills will increasingly replace and displace technical production skills. In reforming our curricula for future working, we need an end to the positioning of theory as a body of thought and critical skills that are in any way separable from production. We need to continue integrating theory and practice right across our provision with a new urgency – every practical session where students learn to make something digital now needs a tutor working with those students to refine the prompt specifications and explore the relevant technical, historical and critical specifications that underlie a description of the required product. This will underpin the complete rethinking of the relationship between artists and their materials brought about by gen AI. As Welsh puts it in his article 'The End of Programming',

"In this new computer science—if we even call it computer science at all—the machines will be so powerful and already know how to do so many things that the field will look like less of an

engineering endeavour and more of an educational one; that is, how to best educate the machine..." (Welsh 2023)

One corollary of this is that we may be able to stop defending degree-level university education with its insistence on encompassing both technical and theoretical content. When technical skills have been displaced in the workplace by critical, contextually informed knowledge and the ability to communicate these effectively to the machine so that it produces what we desire, technical trainings alone become inadequate for future employment. GenAI will fundamentally change what we do in universities in challenging ways – but it will have very serious and wholly negative implications for technical training provision at sub-degree level.

Another (more hopeful) consequence is that, even though GenAI permits non-specialists to produce creative work, there is now emerging evidence that "expertise does provide an edge and leads to better results..." (Eisenmann et al. 2025). While there will be a loss of jobs in the creative industries to non-specialists using AI assistants, the type of expertise and knowledge provided by degree-level creative courses will still give graduates able to use gen AI an advantage. Degree-level courses in creative subjects will still be in demand even if there will be less work than at present reserved for those with creative expertise.

3.2 Working with others

Almost all programmes in the creative digital arts include some group work in courses – where we hope students learn and develop skills in communication, empathy, networking and dispute resolution. Currently, some arts courses may present such content informally and demonstrating skills in group work may not be a required or assessed part of students' programmes. However, as shown above, these skills underpin success in the model of creative production which will be *least* affected by AI. It is in precisely this area of expertise that students will require for a sustainable, long-term creative career. Instead of being merely advantageous adjuncts, group working and collaborative skills will form the absolute foundation of a successful creative professional's toolkit.

Universities need to teach effective group working more rigorously and at a higher level. All students need to be confident in talking to clients and other creative professionals. When AI is producing the artefacts and components within a creative production process, it is humans with a knowledge and understanding of creative artefacts and of the processes through which they are made to suit their intended purposes who will lead the discussions about the options and alternatives – and get agreement.

3.3 Moving into professional practice

Most students in the school have previously got their first position (freelance or established) through having some sort of showreel or portfolio – often on a public site such as ArtStation or similar. They've typically gone into entry level positions where the work is often repetitive but there is the opportunity to work with middle level creatives and gain both knowledge and experience.

Posting portfolios is fine if the only way to produce what looks initially like skilled work is by skill. However, creativity is not that important in portfolios (hiring managers want to know artists can produce the type of work they are already making) and they are low stakes (no job to lose), so that GenAI makes it possible for more people, including non-specialists, to produce portfolios which *at a glance* look OK. Glancing takes time and the increasingly intense scrutiny needed to distinguish between human and AI created work (even if that remains actually possible) will take even longer as GenAI technology is developed. One can theoretically look through 100 Art Station pages in a day or so, but looking through a million? Already submission sites are closing because they cannot cope with the volume of AI produced work (Hern 2023).

In most creative industries, both of the traditional steps (having a public portfolio, going after entry level positions) to getting started on a professional career will vanish – and we need to start preparing students and our programmes for the alternative approaches that will be needed.

4. CONCLUSIONS

Generative AI will cause an increasingly significant transformation to creative digital production. Through looking at the features of GenAI and the nature and organisation of creative work in digital arts, we are able to make informed predictions about the qualities graduates will need to thrive. These predictions are reliable and already being supported by the evidence of changes observed since the launch of ChatGPT in 2022. GenAI is already changing professional practice across most areas of the creative industries, and we must ensure that when students leave us, they are actually ready for professional practice as they will find it, not for a professional world which has vanished.

5. RECOMMENDATIONS

- Degree-level study still provides graduates with an advantage in sectors with high AI-adoption rates although this is less pronounced than previously.

- Students need an understanding of how technology and project-costs differently affect the various processes involved in digital arts production so that they can make informed choices about their careers.
- We need to redesign our creative practice courses around the new relationship between makers and materials – a knowledge of the low-level features of digital objects is unnecessary, students need the vocabulary and knowledge to specify what is required. However, a knowledge of affects, media history and how digital media is consumed and valued by audiences becomes central to professional practice.
- Direct, in person, networking will be the only way for graduates to get their work seen by an employer – we need to build in more visits, more portfolio reviews, more guest workshops into our courses. We need to be training students and then engineering the social situations where they can establish a direct relationship with a potential employer who will then look at their work.
- We need to extend courses to include work experience that is longer and at a higher level than currently so that graduates have both skills and experience to leap over the gap created by the loss of entry level positions. We need to get them to the point where they are ready to go after middle-level positions directly from study. More placements, more in house production, more 'real' experiences of professional working that give them the industry contacts and production credits before they leave us.
- Students need to be able to use AI tools so they can cope with the increased productivity demands of those in senior roles (Eisenmann et al. 2025).
- Students need to understand the wider problems associated with generative AI use and to have a clear sense of the ethical and legal frameworks underlying sustainable, principled creative practice (Birss 2023).
- We need to teach our students resilience, working with AIs has already been found to be isolating and damaging for workers' mental health (Tang et al. 2023).

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