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## Constructive copying: Exploring the vocabulary

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## **Introduction and background context**

Not only is it unacceptable for design students to repurpose imagery without reference to provenance or historical context, it is equally unacceptable for them to remain unaware of the detrimental effects certain forms of copying can have on the design industries. In recent years, it has become increasingly apparent that the ease of digital copying from internet sources like, for example, Pinterest and Google Images, and the growth of internet search tools have encouraged students to scan or download uncontextualized images and use them in their work with little or no adaptation. In industry, even when designs are registered it can be very difficult to protect them from being copied and the cost of defending intellectual property in designs can be greater than the cost of creating them (Louziou 2016). Supported by digital technology, counterfeiting is becoming increasingly detrimental to the garment industry in particular (Armstrong and Muirhead (2015, 71).

The practice of copying from archives for assembling visual reference is common in the design industries, particularly in the printed textile industry, and many new collections start with a trawl through textile archives or other visual sources to seek inspiration. Consistent with such practice in industry, design briefs for textile design students commonly begin with similar searches. However, much of this type of activity is largely implicit, with attention focused by both experienced and aspiring designers alike on the development of new design rather than on the mechanisms for seeking inspiration. The authors decided to try to find a means to shift the focus onto the complex nature of copying itself during student projects as a means of addressing the negative aspects of digital copying, and to make ‘constructive copying’ part of the design curriculum.

## **Copying in industry and education**

The broadcaster Andrew Marr (Marr 2013, 110–113) provides both a contemporary view of the concern and confusion that the concept of copying can cause and a robust justification of its use. Not only is the practice of copying from archive and other forms of visual sources widely accepted in the textile design industry, the ‘vital role of explicit external sources of inspiration in triggering and guiding designers’ activities’ is well recognised (Petre, Sharp and Johnson 2006, 183), although there has been a reluctance by some academics to officially include ‘copying’ on the curriculum (Schenk 2016, 84-5, 117). In historical terms, right from the development of design education in the first half of the nineteenth century the content of the drawing curriculum has always been controversial and, for example, the conflict between

William Dyce and Benjamin Haydon concerning the curriculum of the Government School of Design centred on the extent to which life drawing as opposed to copying should be seen as a basis for the training of design school pupils (Strand 1987, 2). Haydon urged that copying works of art led to mere mannerism and that studying the living nude would encourage ideation. Dyce, who believed that the study of drawing must in every instance be conducted with reference to the use to which it is to be applied, objected to the bias towards life drawing encouraged by Haydon on the grounds that it was producing good draughtsmen in the artistic sense whereas the copy of patterns was more appropriate to the needs of artisans (Macdonald 1970, 58). Kantawala and Daichendt (2017) describe the different approaches to copying in the early schools of design and, in particular, how Dyce's curriculum of copying exact examples of geometric figures formed the basis of the influential South Kensington System of instruction, and they also explain how the author Bell saw this as having 'nothing to do with aesthetic feeling, nothing to do with nature or the imagination; [and that] it was established not for the benefit of the pupils but for that of their prospective employers' (see Bell 1963, 261).

Accordingly, there have been mixed views on the advocacy of drawing-based copying from the early days of design education, whereas the practice has remained more acceptable to artists. According to Cain (2010, 102), copying 'is a time-honoured method used by artists as a fundamental way of observing and is a necessary aspect of the training for practitioners in many cultures', and she identifies three forms, namely copying to replicate, copying to transcribe and copying to learn. Indeed, the re-evaluation of copying as a method of learning about drawing has also been advocated by other artists (Camp 1981, Drew and Harrison 1987). Furthermore, in the view of Paine (2000), skills of observation and copying have their value as disciplined visual and practical learning. Drew and Harrison (1987, 2) admit that 'copying can be a problematic word with its implications of slavish imitation' and, Petherbridge (2010, 266), in her discussion of 'emulation and imitation', agrees that the practice of copying might at times be part of a 'deception'. She does however offer a positive definition for copying as a 'non-fraudulent manual repetition of another work of art'. Similarly, for Irvin (2005, 123), the crucial difference between fraudulent copying or forgery 'is seen to lie in the fact that artists bear ultimate responsibility for whatever objectives they chose to pursue through their work, whereas the forger's central objectives are determined by the nature of the activity of forgery'. For centuries, Chinese students have been educated by studying and copying the work of great masters (Armstrong and Muirhead, 2015), and their

visual literacy demonstrated in the precocious ability of Chinese children to memorize and recall imagery acquired through copying has long been acknowledged (Jolley and Zhang, 2012). While Chinese firms are increasingly focused on innovation rather than copying (Rein 2015), it is worth considering the potential positive effects of encouraging copying in UK design education. By encouraging students to use drawing for their copying activity, active and intelligent engagement with the visual source may be inspired ‘by shifting regard between what is perceived and what is imagined, between the percept and the image.’ (Imperatore 2012, 37).

### **Systematic approaches to teaching and terminology**

Hargreaves (2016, 37) claims that a new narrative of educational change is emerging, and that this ‘narrative embraces a vision of a large-scale system for learning that is more creative, inclusive and sustainable.’ Gustina and Sweet (2014, 46) refer to a ‘current global interest in the development of creative thinking for all areas of education’ requiring ‘the construction of learning experiences that generate not only creative products but also creative processes’. Within this framework it is agreed that students can learn problem solving, with formal training workshops being one of the strategies that can help develop creativity (Karpova, Marcketti and Kamm 2013). However, systematic educational methods should not preclude designerly experience. Thus, Budge (2016) emphasises the importance of designer educators maintaining their professional practice and Lee (2014) recommends multidisciplinary collaboration, both thereby corroborating the views and practices of the design industry to which students aspire to belong. In an educational ethos where learning experiences may be both systematic and inclusive, the copying of found imagery can be a form of collaboration with the originator, especially if encouraged through systematic learning experiences that connect cognition with practice, such as in the Constructive Copying Workshop described below.

Part of the problem in achieving what Hargreaves (2016) describes as a ‘large-scale system for learning’ in design education is the lack of agreed terminology in both the design industry and education. Thus, Love (2000, 295) offers ‘confused and imprecise terminology’ as one of his criticisms of design research. Indeed, after over half a century of inquiry, design research has failed to promote research-led teaching that fully elucidates the implicit, tacit learning that takes place in the design classroom, a failure surely based in part on a lack of agreed terminology to enable such elucidation. The term ‘*copying*’ is a case in point. In the

design schools of the Nineteenth Century copying was a useful, albeit somewhat overused instrument of learning. Today the term is mainly associated with ‘bad behaviour’ as one of the student respondents in the investigation described below put it, and not the analytical and inspirational educational procedures it once represented.

Furthermore, it is not only certain aspects of teaching and terminology that the research project described in this paper seeks to address, but also the enhancement of the visual literacy that underscores the interpretive effects of copying. In the view of Lupton and Miller (1996, 62), while modern design theory focuses on perception, a historically and culturally self-conscious approach would centre on interpretation, or visual literacy, which, they argue, would be more appropriate. Clarke and Cripps (2012, 113) examine pedagogical approaches that ‘engage students’ multiple intelligences so they may acquire deeper understandings of their own creative processes’ and Ritchie, Tinker, and Power (2015) summarise recent educational developments that seek to improve students’ abilities to manage and use complex data with a view to be supporting their learning and improving employability. Visual literacy is dependent on the engagement of multiple intelligences and the ability to manage complex data and ‘there is a need to encompass in art and design curricula new forms of visual literacy and competencies that cater for the interpretation of digitally generated visual outputs, as well as to address the ability and skills to create them.’ (Souleles, 2013, 252)

### **Research methods and phases**

This new investigation was conducted over a period of approximately a year in a series of three phases that altered in nature to fulfil different aims, and progressed from exploratory practice-based to more analytical types of research. Where possible the researchers endeavoured to achieve consistent use of terminology in research and publication, reference being made where necessary to the Table of Succinct Terms and the Taxonomy of Drawing in Design to be found in Schenk (2016, 176, 184). Consistency was also achieved by use of a Drawing Analysis Checklist which was formulated for the research project and updated through discussion once the main topics and definitions had been agreed.

In *Phase One*, the authors explored copying activity by working themselves from the same visual source while experimenting with media and techniques as they recorded their ideas and reactions while drawing. They also kept a journal to help record experience and to reflect on the terminology associated with copying. Later, they discussed their developing attitudes, analysed their drawn outcomes, and evaluated the words that could be used in a Copying

Vocabulary Matrix (see Table 1) based on their own personal involvement. The process of drawing while at the same time defining terms was challenged by what Sclater (2017, 299) terms the multiple ‘incoherencies’ affecting researchers from different backgrounds while working together. However, by adopting a sequential methodology like that Graham (2016) describes as his serial approach to drawing based on a study of phenomenology, a group of words was eventually selected that represented different kinds of copying techniques. A workshop including student printed textile designers was also planned in this phase and it was agreed that, since the tasks to be set were difficult, specified time in class should be allocated and outcomes included in ‘assessment’. It was also decided to set clear media limitations e.g. ‘only black pencil and paper to be used’, to maximise comparability in the drawn outcomes.

In *Phase Two*, the authors first led a one-day workshop (detailed below), with short opportunist interviews, small group discussions and observations of drawing practice being conducted in the studio as the students worked. More structured interviews were conducted a month later after the students had had opportunity to reflect on their practice because, as Cross (2011) states, asking designers about what they do is perhaps the simplest and most direct form of inquiry into design ability. After only one semester of specialist study the students participating in the workshop were still relatively new to their subject discipline but, with their drawings and reflective notes made during the workshop to refer to, they all had perceptive and informed comments to make about their experience of copying.

*Phase Three* consisted of a systematic analysis of the students’ verbal and written reactions to the workshop, and of the drawn outcomes. The authors conducted a joint review of these drawings during assessment, and then selected five student portfolios of six drawings for further analysis. This selection was based on the typicality and the visual variety represented in these portfolios, although, it should be said that all the student drawings were competent and demonstrated thoughtful and inventive practice. Each of the selected portfolios included a reflective journal with commentaries on the production of their drawings, which are quoted verbatim in the discussion allied to the relevant figures below. Working with a relatively small but purposive sample of 12 students for the interview programme, and five portfolios of six drawings for analysis, a sample was built up that was satisfactory to the specific needs of the research. As indicated by Cohen and Manion (1985: 100), ‘in purposive sampling the researcher handpicks the cases to be included in the sample on the basis of a judgement of their typicality’.

The drawings presented below are the working drawings, with only some minimal image editing to increase the contrast in three of the feinter examples. The full A4 scan of each drawing has been shown uncropped in the figures to maintain the differentials in scale of the originals. The fact that some drawings were produced on paper and some on tracing paper is evident in the tone of the background. The orientation of the original was not specified and so it was turned in various ways during use but the orientation of the drawings is maintained in the figures.

### **The Floral Course and Constructive Copying Workshop**

The workshop, referred to as the Constructive Copying Workshop, was conducted as part of a second semester 12-week Floral Print Course which was, in itself, intended to focus attention on methods of working from visual sources by encouraging students to draw from actual flowers, found images and their own photographs. The general aim of the course was to develop students' awareness of contemporary textile markets by broadening their observational skills and creative thinking skills through drawing in the production of a series of ideas around a specific visual theme and in response to visual references. The more specific aims of the Constructive Copying Workshop were, to enhance awareness of the stylistic characteristics of visual sources, to encourage a reflective practice of drawing for design, and to enhance awareness of effective copying techniques. A written brief set out these specific aims, and students were asked to use only paper-based media, i.e. pencil and paper. An original image, namely a printout of a section of the floral Liberty print named 'Thorpe', was given as part of the brief, and the students were asked to draw using this image as a visual source (<http://www.libertylondon.com/uk/thorpe-tana-lawn-cotton-80675.html>). They were also asked to respond to a Copying Vocabulary Matrix (Table 1), and to try to interpret their own choice of six words from it in six different drawings. Furthermore, they were asked that, while drawing, they jot down their thoughts about the meaning of the words. These notes later formed the basis of a reflective journal describing their responses to the workshop. As indicated above, a range of terms describing different types of copying procedures was identified to build up a vocabulary of copying techniques. The selection included the words 'trace', 'reproduce', 'duplicate', i.e. to produce some form of facsimile or direct reference to the original; 'translate', 'investigate' and 'deconstruct', i.e. to interrogate the original for innovative potential; and 'emulate', 'memorize' and 'reinterpret', i.e. to seek inspiration from the original. These are set out in the tabular format shown in Table 1 to represent these three distinctions.

trace	reproduce	duplicate
translate	investigate	deconstruct
emulate	memorise	interpret

Table 1 Copying Vocabulary Matrix

The students were also given reference to texts on historical approaches to copying and access to an online dictionary and thesaurus (Thesaurus.com) to encourage them to find definitions for the terminology provided and to relate theoretical considerations to their drawing practice. The workshop continued throughout a whole working day so, after the initial presentation, there was ample time to follow up queries with individuals and through small group discussions. Although students allocated different amounts of time to each drawing, with an allowance of at least half to three quarters of an hour possible, the consideration and concentration facilitated for the development of each drawing provided a very different experience to the swiftness of digital copying.

### **Drawing Commentaries**

Various inferences can be made from the analysis of drawings and the student comments made either during the workshop, or in later interviews and in the journals. All the students who attended the workshop initially said that they expected it to be both interesting and useful and, by the end, they all agreed that it had helped them ‘make sense’, as one put it, of the potential of drawing-based copying. From the analysis of the written and verbal comments of the students, it was evident that most had found appropriate definitions of the terms in the matrix and that this had helped them develop strategies for the copying exercises. The use of digital devices was not specifically banned in the development of these strategies and several students had used their smart-phones to ‘flip’ the original image and change scale, although all the actual drawings were executed in pencil.

During the workshop, all the students were asked to start their drawing exercise with a response to the word *Trace*, so they had all used tracing paper to produce a version of the original by a careful tracing. However, when analysing the associated drawings and commentaries, it was observed that one student had developed a precise technique prompted by the found definition ‘indication of the existence or pressing of something’. She wrote that ‘for this drawing I have flipped the image. I have then traced the flipped image on tracing paper. After that I have transferred the image to paper. I have left a faint image’, thus producing the image shown on the left-hand side of Figure 1. In contrast, a second student in



describing her reaction to the practice of tracing, explored her own reactions, wondering ‘how to translate shapes of a screen-print into lines?’. She began to recognize that ‘the traced drawing has a completely different effect and “feel” to the original’, recording that tracing leads to ‘noticing things that you did not notice before’ and that, even in an apparently mechanical process like tracing, one’s own ‘handwriting’ comes through. ‘I realised that even the tracing was done in my own way. I had to decide how much detail to put in and how to interpret some parts that were not clear’. Another student described ‘going over outline, layering other outlines on top. An exact copy is not possible’ she said, while another agreed ‘it is quite hard to get an exact trace’.

Figure 1 Trace; Kate McGinley and Clara Leitão, 2017

While some students acknowledged that tracing was already part of their established range of techniques others were still coming to terms with the concept of constructive copying. While one student said that she ‘would often trace for something intricate or delicate’ and another agreed that she ‘often traced to understand details better’, a third admitted that she ‘always thought tracing was cheating’.

This combination of a carefully considered approach, leading to a development of drawing strategies and personal reflections on their established practice, was apparent in the commentaries on all the different drawings the students produced but was most marked for the term *Trace* because it was the first drawing experience in the workshop for them and, therefore, the one that prompted most queries and readjustments. The use of observation to analyse the original, being an inherent part of the tracing technique, also proved to be an important factor in several other drawing commentaries, particularly for the term *Reproduce*.

In the drawing produced in response to the term *Reproduce* (and shown on the left-hand side of Figure 2) one student described her experience as ‘more like looking and trying to recreate through observation’, explaining that ‘looking at negative spaces is very helpful’. She developed a technique to render what she observed ‘by taking a section of the original and using different shades of pencil to distinguish colour’, although she also found that ‘it is difficult to reproduce tonal variations and to avoid texture (since pencil naturally creates texture)’. Taking on the difficulty of reproducing the entire image, or ‘recreating the design

so it looks the same' the student whose drawing is shown on the right-hand side of Figure 2 described adding more detail, including tonal reference, to make the design look closer to the original. Another student described quite a different strategy for a drawing for *Reproduce* (not illustrated here), saying 'I chose to only fill-in the background which almost inverted the image. I like the effect created. It is not a completely identical copy...but it gives a sense of what should be there without drawing it'.

Figure 2 *Reproduce*; Clara Leitão and Miriam Totterdell, 2017

Other students agreed that *Reproduce* meant creating an image that was closer to the original than a *Trace*, using phrases such as 'the same repeated', 'make it look as close as possible to the original', and 'as alike as possible'.

Of the selected student group, only two produced a drawing for the word *Duplicate*. One described a strategy she adopted in response to the found definitions 'repeat' and 'to double' by taking one motif from the original and repeating it across the page to create a new pattern. 'The same shape copied over and over again; the same shape at different angles'. Indeed, during interview, three other students expressed a view that the word meant taking a section of the image and repeating it as a means of duplication, or to 'copy one aspect lots of times' or 'take certain areas and repeat'.

Similarly, only two students chose to work with the word *Translate* although there was general agreement in the student commentaries that to 'translate' facilitated the use of the original to their advantage, that is to say to 'translate into your own style', to make a 'translation to your own version', or to 'take inspiration in your own way'. One of the students who produced a drawing based on the term *Translate* worked from the found definition of 'interpret', or, as she put it, 'starting to understand the image from one's own point of view – more than just reproducing the image'. The second confirmed it was to 'make your own translation of what you see, and then recreate'. In her commentary, another student proposed 'changing the convention' as a possible approach, while yet another proposed 'taking an existing image and making it useful in your own style' indicating a developing sense of stylistic conventions in young textile designers.

The reactions to the word *Investigate* were all very similar and can be summed up by the comment of one student whose drawing is on the left-hand side of *Figure 3*, and who ‘zoomed in and did a closer version’. The student whose drawing is on the right-hand side decided to ‘look in a more critical way. Focus on smaller details and understand more thoroughly’. These reactions mirror the found definition quoted by several students that to ‘investigate’ is to ‘carry out a systematic or formal inquiry to discover and examine the facts’, or as one student put it ‘scale up the image to get a closer look at it’.

Figure 3 Investigate; Hayley Lees and Clara Leitão 2017

Several students emphasised this kind of analytical observation describing, for example, their decision to ‘look at one little bit of the image for ages to see one little detail’, ‘discover new parts - new areas where you did not focus before’, or ‘look hard and try to achieve detail’. In addition to this emphasis on observation as a precursor to re-creation, as the students were freed from trying to merely reproduce the original it could be seen that they began to achieve different kinds of decorative potential and visual style in a varied range of drawn images.

Seemingly, the students enjoyed the freedom to express themselves in this form of innovation, and this was particularly evident in their varied responses to the word *Deconstruct*. Describing her approach to the creation of the drawing shown on the right-hand side of *Figure 4*, the student refers to ‘a section which I traced then repeated/mirrored, and then coloured-in the background. This is a way I like to work...My favourite is definitely the mirrored/repeated deconstructed version’. The other student whose work is represented in *Figure 4* responded to the found definition ‘reduce (something) to its constituent parts in order to reinterpret it’ by, as she said, ‘trying to take small parts and draw over the top of them with other parts of the flowers. Trying to reproduce the print in a different form... I had a lot of fun with this one’, she noted.

Figure 4 Deconstruct; Hayley Lees and Kes Andrews, 2017

Another student explained how ‘for this I have only drawn the red and pink parts of the image’, thus describing a simple but effective plan. However, for most the strategy was to ‘take sections and analyse – ‘cop a wee peek’, as one put it. Their commentaries describe the process of designerly ‘deconstruction’, a term they were clearly familiar with, being in their words, ‘to take the image apart and make it more simplistic’, ‘pull it apart’, ‘disassemble’ or, more specifically, ‘take the levels in the image apart’, or again to ‘analyse the kind of shapes that make up the style’. As one student realized, you ‘can begin to do this when you understand the image fully – like cubism, you can simplify and reorganize’, thereby recognizing the importance of the learning experience implicit in a period of drawing practice.

The word *Emulate* was the term that most students struggled to interpret. It did not have visual or designerly connotations for them and most admitted to having trouble with understanding the term. One student had found the definition ‘perfect match – imitate’, and only one offered a view that it meant to ‘look for the inspiration behind the source’.

Students did not underestimate the difficulty of drawing in response to the word *Memorise* while working with definitions like ‘commit to memory: learn by heart’. ‘The shapes of flowers were hard to learn, hard to get right. Trying to form a cluster of flowers to try and get the sense of the Liberty print’, and ‘hard to remember the essence. Hard not to lose information’, were some of the comments of the creator of the drawing on the right-hand side of Figure 5, and reveal this struggle. Various strategies were employed. For example, ‘trying to recreate the design without looking at it by drawing the sections that were most memorable’ was that adopted by the student responsible for the drawing on the left. ‘I have been looking and then putting the source away, but it is surprising how little one remembers’ said another, echoing the experience of most students.

Figure 5 Memorise; Kes Andrews and Miriam Totterdell, 2017

Good observation was understandably important in this exercise, and students described looking at the original for ages ‘to get it into your memory’, looking ‘at each part e.g. an individual flower and then... draw it, without looking at the original’, ‘looking with concentration in order to remember the most’. Almost all of the students agreed that this was

the hardest part of the workshop. As one explained 'I've been looking at it all day but still could not remember either layout or shapes'. 'To look away to draw and then refresh' seemed to be the most effective tactic, although just trying to memorize a small section, 'a little cluster' also seemed to be effective.

It could be seen that, while having problems producing their drawings from memory, students maintained their interest in the stylistic aspects of textile design, wishing to remember not only the appearance of the original but also its stylistic qualities as a Liberty print. This interest in style was certainly manifest in their approach to the final drawing term, *Interpret*. 'This last one is a copy but with jagged, straighter edges as opposed to smooth, flowing Liberty lines. It looks quite unusual but I think that it is still obvious that it is the same print', was the student's comment about her drawing on the right-hand side of Figure 6.

Figure 6 Interpret; Kate McGinley and Hayley Lees 2017

A simple tactic of changing scale created the innovative design on the left-hand side of *Figure 6*, and other students described similar devices, like 'highlighting the background to get a different effect' thus maintaining the 'same overall mood but in your own style'. It was generally agreed that to interpret meant to 'take what you are looking at and make it your own', but it was also agreed that 'to make your own interpretation of the image you need to know it well', which of course was the main result of a day spent copying the same image.

### **Summary of findings and conclusions**

It was found that the aims of the workshop were well met. Student awareness of the stylistic characteristics of the visual source were enhanced by the practice of copying through drawing, and, as designers, a reflective understanding of their drawing practice was also achieved. Moreover, a significant contribution to the aims of the Floral Course as a whole was also realised, it being apparent that the student's observational skills were broadened as was their capacity to produce 'a series of ideas around a specific visual theme and in response to visual references.' Furthermore, students were able to generate a wide range of imagery even while working with limited means and from the same visual source, thereby demonstrating the role of drawing in facilitating innovative visual thinking and ideation. Through a formal, structured workshop with closely defined aims the students could be

encouraged to advance both theoretical and practical capability in the practice of industry-worthy skills.

In conclusion, it was confirmed that, through the production of their drawn copies, the students demonstrated a capacity to respond to selected vocabulary through visual means, in fact to visually define that terminology. They also showed the ability to translate their understanding of terms into strategies to produce drawings. Their observational skills improved as they employed them and they became more perceptive. They were able to make personal assessments about their established copying techniques and make informed decisions about the use of techniques new to them. They enhanced their skill set and were able to draw in a highly crafted or freehand way, as appropriate. While still new to specialist study, they used the learning experience to heighten their discipline expertise as printed textile designers, becoming more alert to decorative and stylistic potential. Essentially, it is in the visual literacy of textile design that they achieved most improvement and, therefore, the main conclusion has to be that linking terminological cognition with drawing practice facilitates not only systematic analysis and technical development, but also helps establish the visual vocabulary of textile design. Therefore, a systematic reintroduction of drawing-based copying to the design drawing curriculum is recommended.

## References

- Adams, J. (2016) Editorial: Creativity in Teaching, *International Journal of Art and Design Education*, Vol 35, No 2 pp. 180-182.
- Armstrong, A. & Muirhead, A. (2015) From counterfeit to classroom in the Association of Fashion and Textiles Conference Proceedings Futurescan 3: Intersecting Identities. 11- 12 November Glasgow: Creative and Print Services, Loughborough University, pp. 71-83.
- Bell, Q. (1963) *The Schools of Design*. London: Routledge and Kegan Paul.
- Budge, K. (2016) Learning to Be: The Modelling of Art and Design Practice in University Art and Design Teaching, *International Journal of Art and Design Education*, Vol 35, No 2 pp. 243-258.
- Cain, P. (2010) *Drawing: The Enactive Evolution of the Practitioner*. Bristol: Intellect Books.
- Camp, J. (1981) *Draw: How to Master the Art*. London: Andre Deutsch.
- Clarke, A. & Cripps, P. (2012) Fostering Creativity: A Multiple Intelligences Approach to Designing Learning in Undergraduate Fine Art, *International Journal of Art and Design Education*, Vol 31, No 2 pp. 113-126.
- Cohen, L. & Manion, L. (1985) *Research Methods in Education* (2nd ed.). London: Croom Helm

- Cross, N. (2011) *Design Thinking: Understanding How Designers Think and Work*. Oxford and New York: Berg.
- Drew, J. & Harrison, M. (1987) *Past and Present: Contemporary Artists Drawing from the Masters*. exhibition catalogue. London: South Bank Centre
- Graham, J. (2016) Time taken and time told: Serial drawing as the becoming of now, *Drawing: Research, Theory, Practice*, Vol 1, No 1, pp59-78
- Gustina, S. & Sweet, R. (2014) Creatives Teaching Creativity, *International Journal of Art and Design Education*, Vol 33, No 1, pp. 46-54.
- Hargreaves, A. (2016) Blooming Teachers, *Royal Society of Arts Journal*, Vol. 162, No. 1, pp. 34–9.
- Imperatore, L. (2016) See for yourself: Drawing (out) the interiors of vision, *Drawing: Research, Theory, Practice*, Vol 1, No 1, pp. 37-57.
- Irvin, S. (2005) Appropriation and authorship in contemporary art, *British Journal of Aesthetics*, Vol 45, No 2, pp. 123–137.
- Jolley, R., & Zhang, Z. (2012) How Drawing is Taught in Chinese Infant Schools, *International Journal of Art and Design Education*, Vol 31, No 1, pp. 30-43.
- Kantawala, A. & Daichendt, G., J. (2017) George Wallis (1811–1891) and Ernest Beinfeld Havell (1861–1934): Juxtaposing Historical Perspectives on Nineteenth-Century Drawing Books in England and India, *International Journal of Art and Design Education*, Vol 36, No 1, pp. 71-81.
- Karpova, E., Marcketti, S. & Kamm, C. (2013) Fashion industry professionals' viewpoint on creative traits and, strategies for creative development, *Thinking Skills and Creativity*, Vol 10, pp. 150-167.
- Lee, J. (2014) The Integrated Design Process from the Facilitator's Perspective, *International Journal of Art and Design Education*, Vol 33, No 1, pp. 141-156.
- Loizou, K. (2016) Let's make it uncool for copycats, plead inventors, *The Sunday Times Business Section*, 26.06.16 p11.
- Love, T. (2000) 'Philosophy of design: A meta-theoretical structure for design theory', *Design Studies*, Vol 21, No 3, pp. 293–313
- Lupton, E. & Miller, A. (1996), *Design Writing Research: Writing on Graphic Design*. London: Phaidon Press.
- MacDonald, S. (1970) *The History and Philosophy of Art Education*. London: University of London Press.
- Marr, A. (2013) *A Short Book about Drawing*. London: Quadrille.
- Paine, S. (2000) *Artists Emerging: Sustaining Expression Through Drawing*. Aldershot: Ashgate.

Petherbridge, D. (2010) *The Primacy of Drawing: Histories and Theories of Practice*. New Haven and London: Yale University Press.

Petre, M., Sharp, H. & Johnson, J. (2006) 'Complexity through combination: An account of knitwear design', *Design Studies*, Vol 27, No 2, pp. 183–222.

Rein, S. (2015) *The End of Copycat China: The Rise of Creativity, Innovation, and Individualism in Asia*. New Jersey: Wiley.

Ritchie, J., Tinker, A. & Power J. (2015) The effectiveness of design thinking techniques to enhance undergraduate student learning, in the Association of Fashion and Textiles Conference Proceedings Futurescan 3: Intersecting Identities. 11- 12 November Glasgow: Creative and Print Services, Loughborough University, pp. 10-20.

Schenk, P. (2016) *Drawing in the Design Process: Characterizing Industrial and Educational Practice*. Bristol UK/Chicago USA: Intellect.

Sclater, M. (2016) Beneath Our Eyes: An Exploration of the Relationship between Technology Enhanced Learning and Socio-Ecological Sustainability in Art and Design High, *International Journal of Art and Design Education*, Vol 35, No 3, pp. 296-306.

Souleles, N. (2013) The Evolution of Art and Design Pedagogies in England: Influences of the Past, Challenges for the Future, *International Journal of Art and Design Education*, Vol 32, No 2, pp. 243-255.

Strand, R. (1984) 'The art schools' progress', in K. Baynes (Ed.), *Young Blood, Britain's Design Schools Today and Tomorrow*. London: Design into Industry Ltd/Lund Humphries, pp. 72–79.