This paper begins by setting out a cognitivist sociological position from which drawing is construed as a powerful means of gaining and sharing knowledge – the understanding and structuring of our experiences of the world - on a par with the way that the sciences are construed as the means to knowledge. Nelson Goodman is cited as being a leading proponent of this position, first elaborated in his 1978 book Ways of Worldmaking. The paper revitalises Goodman’s explanation of worldmaking as occurring through a range of five transformational processes, by illustrating how the activity of drawing itself affords the application of all such processes in its capacity for making multiple constructions of our world-experiences. The paper then argues that the potential of drawing as worldmaking is best realised through the development of an intelligence of seeing – regarded as a central function of art school pedagogy, and one most conveniently and efficiently explored in the life-room. The continuing validity of life-drawing as a means of nurturing an intelligence of seeing applicable to the worldmaking processes of transformation is illustrated with student work.
INTRODUCTION

Drawing, properly taught, is the best way of developing intelligence and forming judgement, for one learns to see, and seeing is knowledge. (Viollet-le-Duc 1879:305)

In the general field of the philosophy of art, there can be identified two main positions which theorists have identified: the philosophical attempt to define what art is, which has led to a wide range of possibilities outside the concerns of this paper, and a second approach which avoids the difficulties of definitions altogether, and rather explores the concept of art in terms of its value within social contexts. This latter, sociological approach, as opposed to the philosophical approach, regards the concept of art to be a social construction, and becomes more appropriate for the analysis and discussion of the usefulness of art within a cultural context.

Within the sociological tradition, theories aiming to explain value are classed as normative since they attempt to establish a standard, or a norm. Gordon Graham (1997) reviews three such normative positions: firstly, the idea that the value of art lies in its capacity to give pleasure; secondly, that art’s value lies in its abilities to facilitate the expression of emotion; and thirdly, that art is valuable as a source of understanding.

This paper takes the view that the most socially-useful value of drawing lies in its scope for contributing to our understanding of our experiences of the world, rather than as a source of pleasure or a means of self-expression, and as such echoes the opinion of Nelson Goodman (1978:102) who for too long has been virtually ignored in UK art schools:

...the arts must be taken no less seriously than the sciences as modes of discovery, creation, and enlargement of knowledge in the broad sense of advancement of the understanding, and thus that the philosophy of art should be conceived as an integral part of metaphysics and epistemology.

The sense of imbalance between the perceived value of the arts and sciences evident in Goodman’s wording of thirty-four years ago is not surprising for the time, but the fact that his plea for parity between what C.P. Snow (1959) famously described as ‘the two cultures’ retains some validity today is an indication of the failing of the Artworld – particularly the art schools – to articulate robustly their validity as powerful facilitators of experiential knowledge. It is high time that Goodman’s insights inform art school curricula, and to that end we propose a revitalisation of the five processes identified by Goodman as crucial facilitators for worldmaking - by which he meant the capacity to construe and construct
alternative realisations of our experiences of the world - and relate them to the activity of drawing, itself a most fertile means of worldmaking.

Work produced from a series of life drawing workshops, alongside the authors’ drawings have been used to illustrate this paper and demonstrate the relevance of Goodman’s processes to art education and practice.

**NURTURING A CAPACITY FOR WORLDMAKING**

Despite the longevity of the positivist paradigm of research inquiry (Denzin and Lincoln 2005:195) which has informed science for centuries with its ontological absolutism and its so-called objective quantitative methodology, the fact remains that humans construct their realities, they negotiate meanings through culturally-specific symbol systems.

Such a constructivist paradigm is the context in which Nelson Goodman’s ways of worldmaking are developed, and the reason he regards art as a major means of gaining experiential knowledge. According to social cognitive theory, the world is constructed in relation to existing observed and experienced models. The explorative nature of constructivist understandings allows for fresh interpretations and recreations of these frameworks. As Theodore Gracyk puts it: ‘Examining the same object or event, two people who employ different symbol systems will apply distinct conceptual frames of reference to it. As a result, they will engage with different realities. In sum, symbols make worlds.’ (Gracyk, 2012: 49) Specifically, when we apply a symbol system to a situation where there are no established rules for its literal application, we are in the realm of metaphor, and art becomes especially potent when metaphor is used to reveal new possibilities of relationships.

Goodman (1978: 7-17) describes a range of five worldmaking processes, although he stressed that this list is not exhaustive. Here they are listed, and discussed in terms of their application to drawing practices:

**1 COMPOSITION AND DECOMPOSITION**

‘Much...worldmaking consists of taking apart and putting together, often conjointly: on the one hand, of dividing wholes into parts and partitioning kinds into sub-species, analyzing complexes into component features, drawing distinctions.’ (Goodman 1978:7)

The process of *composition*, putting together and ordering components so as to form a harmonious whole, is a synonymous association with the practice of drawing. The concept of *decomposition* too, in the sense of the breaking down of a whole into its component
parts and drawing distinctions between these subdivisions, is fundamental to observational representation. For example, William Coldstream’s infamous ‘dot and carry’ method of implementing one-point perspective depends upon the identification of a single standard measurement (say, the length of a fore-arm), and constructing other component parts of the subject matter in relation to this dimension.

![Sketch of a figure demonstrating composition and decomposition](image)

**FIGURE 1 EXAMPLES OF COMPOSITION AND DECOMPOSITION**

The sketch on the left hand side of Figure 1 demonstrates the construction of the proportions of a standing figure from a division of the whole into component parts. Although quickly executed, the deconstruction of the figure into measured subdivisions has led to a less preconceived and more delicately observed representation of the figure than the more finished, but flatly illustrative description of the human form in the central drawing.

Variations in composition can result in hugely different world-making transformations.
Students were asked to draw two short poses on one sheet of paper, giving consideration to how the two figures would relate to each other on the page. Figures 2 and 3 have many similarities: they both represent the model in two poses, they were completed in the same length of time, they are of similar size and media. Both students chose to focus on the torso- but the drawings present two very different reinterpretations of the subject.

2 WEIGHTING

‘Some of the most striking contrasts of emphasis appear in the arts...What counts as emphasis...is departure from the relative prominence accorded the several features in the current world of our everyday seeing.’ (Goodman 1978:11)

Emphasis and prominence within a drawing are a direct result of choices made by the artist. Through the manipulation of composition and application of media, the viewer's attention can be directed to specific areas of represented images. As Goodman (1978:11) points out, ‘With changing interests and new insights, the visual weighting of features of bulk or line or light alters...’
FIGURE 4 EXAMPLE OF WEIGHTING

*Pippa Fading* (Figure 4) explicitly manipulates a focal synchronization between the artist and viewer. The intense concentration of detail, mark making and texture on the face of the figure ensures that the viewer’s focus rests on the area most heavily concentrated on by the artist. In Figure 5 the effect is more subtle, but the sharp contrast in tone and the central positioning of the vertebrae as they join the back of the skull guides the viewer’s focus into this area of the composition.

Through compositional choices and variation in mark-making the artist is able to direct the viewer’s attention within the work produced. In a more finished painting, where the composition has been planned through preparatory studies, such as *Pippa Fading*, this is likely to be a conscious premeditated decision on the part of the artist. In shorter, less predetermined studies the artist remains able to share their focal interests and preoccupations with the viewer, albeit instinctively.
FIGURE 5 EXAMPLE OF WEIGHTING
Figure 6 is a compositionally unpremeditated drawing produced in the workshops exploring Renaissance drawing techniques. It was drawn with indelible silver point onto a
prepared ground, with no under drawing or formal compositional planning. The drawing mirrors perfectly the student’s concentration on the voluptuous complexity of the cascading cloth. The small hand resting on the top of the composition, draws the viewer’s attention to the presence of an undrawn figure, and accentuates the unusual emphasis and prominence afforded to the fabric in this drawing.

Figures 7 and 8 were drawn by different students from the same model in the same pose. A comparison of these drawings demonstrates how the concept of ‘weighting’ can improve visual literacy in drawing. Figure 8 evidences close observation and focuses on the proportional accuracy of the figure. The convincing proportions combined with the spatial context suggested in the relationship between the figure and the fabric seating creates convincing volume and mass in the seated figure. The consistency of the line that trace the edge of the figure flattens the body and fixes it into a static and rigid pose, lacking the movement and lightness of the represented pose in Figure 7. Where the weighting in Fig 8 concentrates on bulk and spatial context, Figure 7 is weighted towards linear quality. Variations of pressure, speed and density in the application of line provides a variety of descriptive qualities in relation to the represented figure. A heavier line under the elbow suggests physical weight concentrated at this point. The contrast in tone and weighting projects the elbow towards the viewer introducing a curve to the compositionally diagonal figure. This subtle curvature is accentuated by the tilt of the head. The fine lines, tracing the shape of the fabric, differentiate its diaphanous form from the lines that describe the substance of the body.

FIGURES 7 AND 8 EXAMPLES OF WEIGHTING
3 ORDERING

‘Orderings of different sorts pervade perception and practical cognition. The standard ordering of brightness in colour follows the linear increase in physical intensity of light, but the standard ordering of hues curls the straight line of increasing wavelength into a circle...Orderings alter with circumstances and objectives. Much as the nature of shapes changes under different geometries, so do perceived patterns change under different orderings... All measurement, furthermore, is based upon order. Indeed, only through suitable arrangements and groupings can we handle vast quantities of material perceptually or cognitively...Whatever else may be said of these modes of organisation, they are not “found in the world” but built into a world. Ordering, as well as composition and decomposition and weighting of wholes and kinds, participates in worldmaking.’ (Goodman 1978:13-14)

FIGURES 9A, B AND C EXAMPLES OF ORDERING

Ordering shares with composition and decomposition a breaking down and restructuring of the perceived world and an abstraction and categorisation of the world into component parts. Goodman’s assertion that orderings are unstable and are dependent on the purpose they serve can be demonstrated through orderings of colour. The colour wheel (Figure 9a) provides a concise and ordered visual summary of how pigments combine to create hues. The paint chart (Figure 9b) gives a linear ordering of pigment brightness while Figure 9c combines both hues and brightness. Each of these ordering patterns have been formed to meet specific purposes and are, as Goodman states, specific to the objectives they serve.

These distinct orderings of colour exist simultaneously and each represents a different worldmaking potential. This pluralistic nature of worldmaking, where the creation of one ordering system need not negate or devalue another lends itself to a postmodern understanding and reinforces the relevance of Goodman’s philosophy to current pedagogical practice. Understandings of the world and worldmaking constructions are dependent on specific, and often individualistic frames of reference.
4 DELETION AND SUPPLEMENTATION

‘...the making of one world out of another usually involves some extensive weeding out and filling - actual excision of some old and supply of some new material. Our capacity for overlooking is virtually unlimited and what we do take in usually consists of significant fragments and clues that need massive supplementation.’ (Goodman 1978:14)

This is linked to weighting: ‘Just as to stress all syllables is to stress none, so to take all classes as relevant kinds is to take none as such.’ (Goodman 1978:11) That which is included and that which is omitted reflects choices, consciously or unconsciously made by the artist. Elements can be absent from a drawing, with no reference to their existence, or their presence can be suggested through what Goodman refers to as ‘clues’ that need a little or substantial supplementation. ‘Artists often make skilful use of this: a lithograph by Giacometti fully presents a walking man by sketches of nothing but the head, hands and feet in just the right postures and positions against an expanse of blank paper.’ (Goodman 1978:14)

FIGURE 10 ILLUSTRATES GOODMAN’S POINT, SO THAT THE VIEWER HAS TO ‘CLOSE’ THE OUTLINE BETWEEN NAPE OF NECK AND SMALL OF BACK:

A more radical ‘weeding out’ of visual information invites - compels? - the viewer to supplement the meagre amount of information present in Figures 11a and b:
Both deletion and supplementation in visual worldmaking can be subtle. When they support and enhance other worldmaking processes their usage is so integrated into convention, they do not contradict viewer expectations and can pass unacknowledged. The simplification of the room surrounding the model in Figure 12 acts as a wide aperture on a camera lens, softening the focus of the contextual space and focusing on the sculptural form of the figure represented.

FIGURES 11 A AND 11B EXAMPLES OF DELETION

FIGURE 12 EXAMPLE OF SUPPLEMENTATION
Measurement marks are not visibly present in the observed world, but their visual supplementation through drawing (Figure 13) offers an insight into the ordering process.

Within the context of artistic worldmaking, objectification need not be employed as a disinterested abstraction of the subject, but represents an intensity of interest and can anthropomorphise exploration and understanding. In Figure 13 the abstraction of the figure into measurement marks and tonal blocks have an explorative inquisitive quality.
Supplementation makes the prioritisation of visual stimuli perceptible. In Figure 14 the addition of the vertical and diagonal axes through the figure represents a simplification of a complex pose.

Simplification of representation is a useful teaching tool in the life drawing room, it allows students to concentrate on and understand selected elements of the human figure that can seem unfathomable in its complexity. Mapping the form of the model around a simple cross structure that follows the leading angles of the pose presents the viewer with an underlying structure which is not ‘found in the world’ but a materialisation of the ordering process through which the figure was understood.
5 DEFORMATION

‘Finally some changes are reshapings or deformations that may according to point of view be considered either corrections or distortions...Vision stretches a line ending with arrowheads pointing in while shrinking a physically equal line ending with arrowheads pointing out...’ (Goodman 1978:16)
Figure 16 indicates a dramatic deformation of the model’s pose, the result of a challenge to the conventions of geometric projection, particularly the convention of a flat 2-D drawing plane, and instead explores the possibilities of replicating the ‘cone of vision’ implicit in perspective projection geometry by drawing directly onto a cone of paper which was subsequently flattened out into a surface development.

Roberts’ *Extended Drawings* series explores transformations of the primary geometry of the scene through distortions of the secondary geometry upon the flat plane of the drawing surface. The proportional distortions of the figure map the artist’s movements in relation to the model at the moment of representation. The large scale of the drawings creates additional proportional distortions dependent on the shifting position of the viewer.

These five transformational processes, Goodman’s suggestion of how worlds are made, are all visible in drawings produced within the life drawing room. Ultimately, drawing may be construed as a process of transformation from one world-construction to another utilizing one or more of the five strategies identified by Goodman. Drawing as worldmaking produces multiple constructions of world-experiences, and allows the viewer an insight into the transformational world - making process of another, just as it can give the artist an insight into their own transformational process.
NURTURING AN INTELLIGENCE OF SEEING

Drawing and learning are so closely identified as to be almost synonymous. The provisional and experimental potential of drawing make it the medium and trajectory of change, and an artist’s individual development is most clearly promoted and charted through drawing. In this sense, every invention of new forms or means of expression through drawing constitutes an act of self-learning. (Petherbridge 2010:210)

The application of Goodman’s five transformational processes in drawing exercises demonstrates to the student the pluralistic and variable ways in which the world can be understood, processed and articulated. They chart not only the artist’s development, but the processes that lead to that development, the building blocks of accumulative understandings and skill, what might be termed an intelligence of seeing (Riley 2002)

We propose that the quality of any conceptual premise driving the urge to draw, when matched by the quality of perceptual values embedded within the materials, media and processes which make that concept visible and tangible, result in a richer experience both for the producer and for the viewers of such artwork.

Goodman (1978:6) himself concurs that ‘…conception without perception is merely empty, perception without conception is blind (totally inoperative).’

We also propose that life drawing remains one of the most valid activities in the nurturing of an intelligence of seeing.

Life drawing, established in the academies of sixteenth century Florence, has been traditionally used to teach students a range of basic skills relating to formal elements of art and design. The postmodern attitudes of recent times no longer assumed those formal traditions as fundamental, and have resulted in the widespread denigration of life drawing in the art schools as an irrelevant and outdated practice. It is clear that any defence of life drawing cannot rely solely on aesthetic and formal considerations. Ironically, given the postmodern traits of eclecticism and plurality of approaches epitomised by Goodman’s transformational processes applied in the life class, it can be argued that life drawing offers an even richer source of conceptual and metaphoric possibilities for students and practitioners. Fiona Banner’s text based life drawings represent a world making process that diverges from conventional expectations and imagery associated with the nude. The life drawing room necessitates direct interactions and negotiated relationships between artist and model. In doing so, it is more suited to facilitating empathetic understandings
and representations of the human body than depersonalised, physically distanced, second hand source material.

There is an increasing visibility and interest in drawing within British contemporary practice. Tracey Emin’s appointment as Professor of Drawing at the Royal Academy in 2011, and the focus of draughtsmanship in recent works by Michael Landy and Damien Hirst indicates shifts of emphasis from entirely conceptual methods of visual communication. Drawing is central to the multidisciplinary practice of Grayson Perry, and skilled draughtsmanship underpinned David Hockney’s high profile exhibition A Bigger Picture at the Royal Academy in 2012. It is therefore timely to re-examine the unique benefits of the life room for teaching fundamental visual vocabulary, grammar and syntax, and for encouraging personal, sensitive and divergent understandings of the world. Life drawing as world-making articulates these processes.

There are further reasons for the rehabilitation of life drawing: despite infinite variations in the form of the human body, there remains the underlying unity of anatomical structure which allows the opportunity to develop the judgement of correct proportional ratios, which is a fundamental necessity in the production of work in the widest range of media.

The model within the life drawing room also offers the opportunity to study a uniquely flexible (and easily portable) variety of configurations of the primary geometry of the model in their spatial context; variations of linear perspective and other systems of geometrical projection can be explored easily; poses that emphasise foreshortening allow explorations of the secondary geometry – those points, lines and planes representing the edges and surfaces within the primary geometry. At a more elevated level of visual understanding, the human form is the most convenient and yet most complex display of fractal geometry.

The human form is the most flexible subject-matter to explore the grammar of visual communication: elements of line, shape, tone, colour and texture in combination produce scale, proportion, pattern rhythm, and tonal and textural contrasts. The life room provides a focused and disciplined environment for teaching and learning these fundamental drawing processes of selection and combination of visual elements. It offers a structured and supportive environment in which students can develop a visual literacy – visualcy? - in world making processes.

Moreover, the human figure offers a subject matter with which everyone can identify in some way. Our connection to the body is elemental and our fascination with it ubiquitous. Representation of the human body allows for a wide variation of understandings. It allows the artist to construe and construct alternative realisations of world experiences - and relate them to the activity of drawing. One of the prime social functions of all art is to make the familiar strange. (Shklovsky, 1917(1977)). To see and interpret the familiar in a variety of ways is the essence of creativity: life drawing is the most direct, unencumbered way of developing this creativity of seeing.
CONCLUSION

Goodman’s five worldmaking processes offer a framework within which drawing can explore and delineate experiential knowledge. These defining processes echo formalist structures used to analyse and represent the observed world advocated by traditional drawing pedagogical methods. Methods of worldmaking, combined with an intelligence of seeing, metaphorically and practically enhance formal drawing processes beyond the mechanical. Within a worldmaking context the drawing functions as a cognitive construction of understanding and learning.

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