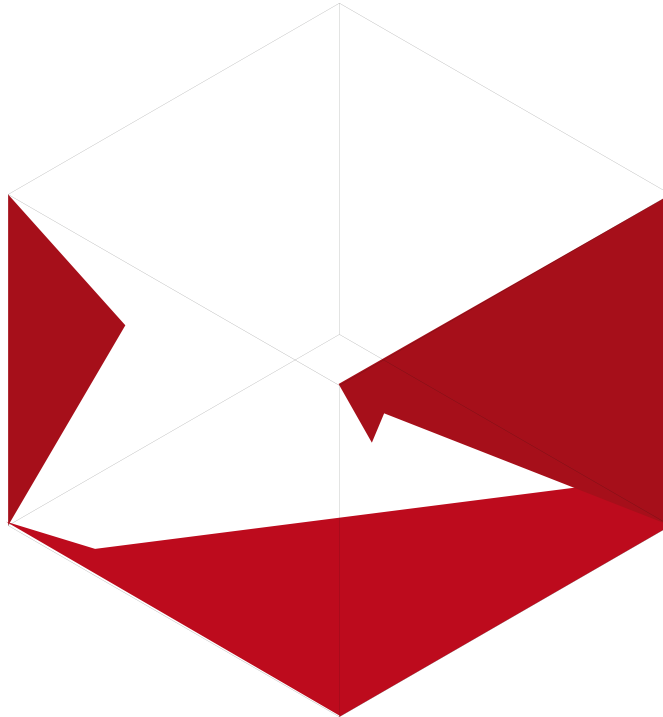


# Studies in Material Thinking



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## Volume 10 The Art of Research

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### Drawing As “Learning To See”: A Strategy To Locate The “White/Open Space” That Encourages Intuitive Thinking In Designers

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**Mari Lecanides-Arnott**

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*Abstract: It is essential for designers to keep up with evolving technologies so that they can function within the networked knowledge economy. However, there is a growing awareness that, because design outcomes are purpose driven and practical, designers should have the knowledge and skills to be able to move comfortably between the real and the virtual worlds. The intention of this article is to examine an integrated, multidisciplinary design foundation course in South Africa, with the aim of demonstrating that the development of drawing skills or “thinking through making” should continue to play a significant role in educating designers. “Learning to see” through drawing can develop the necessary self-awareness and self-confidence in students to enable them to engage in the iterative creative process—thereby encouraging generative self-criticism. Moreover, drawing as a subject, when strategically planned within the design foundation curriculum, can contribute to creating the “white/open space” that encourages intuitive thinking to take place in novice designers.*

*Key Words: Drawing; design thinking; design action; tertiary design foundation studies; self-confidence; intuitive thinking*

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**Introduction**

In the late 1800s in England, the significance of handicraft as an antidote to industrially manufactured objects was realized in the work of William Morris (Goldstein, 1996, pp. 256-260; Gombrich, 1984, p. 444). Similarly, with the founding of the Bauhaus School of Design in 1919, Walter Gropius emphasized the need for the integration of craftsmanship and the expressive form of modern art for manufactured design objects (Goldstein, 1996; Ranjan, 2005). Gropius's intention was not a sentimental return to the past. It was rather an in-depth understanding of how to harness traditional skills and craftsmanship by making use of new technologies and thereby arriving at innovative, sustainable, and meaningful solutions to meet people's needs (Goldstein, 1996; Frayling, 2011, pp. 29-31). Currently, designers require a growing awareness of a balance between the real and the virtual worlds, between design thinking and creative action, and between the appropriate use of technology and handicraft.

In design education today, the foundation course is expected to continue to be at the core of tertiary education to allow for epistemological access and participation, addressed through the curriculum (Boughy, 2005; Tynan, 2006). A key function of the foundation course in design is to encourage lifelong learning and to build up self-awareness and confident generative self-criticism that leads to further creative action in students. These attributes are necessary for creative design action and should lead to intuitive thinking (Leifer, 2010). They can be achieved by “learning to see” through exploration of the visual language of art and design already at the foundation level (Sonntag, 1969, pp. 388, 392). “Thinking through making”, a process which includes drawing, has been incisively described as “shaping ideas” and “the visual forming of meaning” (Arnott, 2011). This process could equally apply to the making of paintings and sculptures, or design objects that convey cultural meaning (Buchanan, 2006, p. 17). Cross (2007, p. 53) also points out that “the thinking processes of the designer seem to hinge around the relationship between internal mental processes and their expression and representation in sketches.” Sketching or drawing is thus a creative action implicit in design thinking processes. In this sense, the ability to visualize ideas through drawing during the iterative design process should be seen as an essential skill—a fundamental principle described in the literature as a “core idea” (Bruner, 1977, pp. 53-54; Wiggins & McTighe, 2005, p. 67)—for designers, regardless of the specific technology used to actualize a design outcome. Drawing translates the abstract idea into the tangible, the seen.

The aims of this paper are: (a) to demonstrate that “learning to see” through drawing can be utilized as a strategy to locate the “white/open space” that encourages intuitive thinking in designers, and (b) to emphasize that this strategy should be implemented in the design curriculum at the foundation level. The strategy should inculcate a critical awareness in students in order to encourage their intuitive thinking and to show that the concept of drawing as part of the process of “thinking through making” is still of relevance to the artist and designer in the 2000s.

**Context: The Design Foundation Course at CPUT**

In this paper, drawing as learning to see is examined in the context of the Design Foundation Course at the Cape Peninsula University of Technology (CPUT). This course has evolved over many years from its inception as the Access Course in 1994, evolving into the Foundation Course in 2005, and into its current form as the Design Foundation Course in 2007. It has been developed to address the needs of a culturally diverse group of students (Scott, Yeld & Hendry, 2007) with different levels of understanding and academic ability and profi-



ciency in the visual arts (DHET, 2012; DoE, 2006). The target group for the foundation course comprises underprepared students, with preference given to those from educationally and economically disadvantaged backgrounds.

The aim of the Design Foundation Course at CPUT is to provide students with an understanding of the visual language and fundamental principles of art and design. This is achieved through the complex, multidisciplinary curriculum in which generic design principles are taught through the specific content of different design disciplines. As described diagrammatically in Figure 1, the objective of the Design Foundation Course is for all students to understand the “core ideas” in design and the fundamentals of the seven design disciplines, including fashion, graphic, interior, industrial, jewellery, surface design, and architectural technology, offered within the Faculty of Informatics and Design (Lecanides-Arnott, 2012, p. 110). An important aspect of the curriculum is that it incorporates language, numeracy, and life skills. Together with the subject of drawing and theoretical subjects of design communication studies, and professional business practice, these provide an embedded framework to support and facilitate a greater understanding of the studio-based design subjects (see Figure 1).

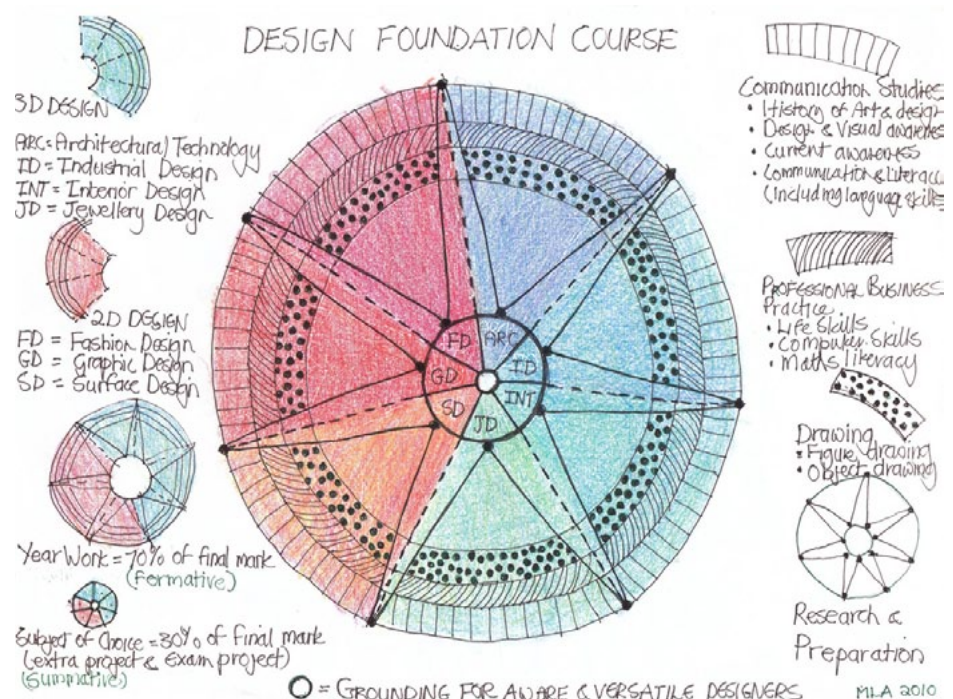


Figure 1: Diagram of the integrated, multidisciplinary Design Foundation Course, CPUT (Lecanides-Arnott, 2012, p. 179).

### “Core ideas” in the design foundation curriculum

It is recommended that the fundamental principles or “core ideas” related to a specific subject, should be introduced early on in all fields of study (Wiggins & McTighe, 2005, p. 296; Bruner, 1977, pp. 40, 54). As such it is never too early to deal with “big ideas” (Bruner, 1977, pp. 52, 58, 65) in design which should be introduced from the beginning at tertiary foundation level in design education so that critical awareness can develop over time. As the language of design is largely visual, “learning to see” is a “core idea” which should be addressed from the start when educating designers (Sonntag, 1969) through various means, including the use of negative space in composition, and the iterative creative design process. Transference and the use of “core ideas” in new and more complex situations should lead to self-awareness



and self-confidence in students (Bruner, 1977, pp. 52-54; Tyler, 1949, pp. 83-86). The design curriculum in the Design Foundation Course at CPUT is developed so that “learning to see” is incorporated into long and short learning experiences in both the practical studio-based and the theoretical subjects.

**A research approach with combined data collection methods**

The research approach described in this paper is derived from a project that investigated the development of a conceptual framework for foundation education in design (Lecanides-Arnott, 2012). It is based on the view that designers tend to develop theory from practice, through the iterative creative process of “thinking through making” demonstrated by the teachers in the foundation course at the Bauhaus (Ranjan, 2005; Raein, 2004; Goldstein, 1996). On this basis, use was made of inductive methods of grounded theory, developing theory from practice (Urquhart, 2002) and theory building from case studies (Eisenhardt, 1989) in the initial research approach. However, over time the research approach evolved into a longitudinal interpretive study. The progress of the 2008 Design Foundation Course students was monitored in the study until they graduated in 2011.

In keeping with the interpretive nature of the research, and the practical and outcomes-based nature of design, the analysis of how drawing can be utilized as a strategy to integrate theory and practice in educating novice designers focuses on triangulation of evidence based on the following combined data collection methods:

- Filmed interview of the student focus group. The selection of the focus group for the filmed interview in November 2008 was made at the end of the foundation year of study once the students had decided which design discipline they would be entering in their first year. For the filmed interview the focus group consisted of 14 students who were chosen from the class of 58 students of the 2008 Design Foundation Course. The group of 14 students was divided so that two students represented each of the seven design disciplines in the Faculty of Informatics and Design (architectural technology, interior design, industrial design, jewellery design, graphic design, fashion design, and surface design). The students registered for one of the seven design disciplines in which they would be continuing their studies after the completion of the foundation course.
- Student design outputs. Foundation students’ drawings and studio-based design projects were documented at the end of each academic year from 2003- 2011. It is from this source that the images for the research study have been selected.
- The artworks by the author used for this study were selected from early and middle career to show the use of drawing in the development of the author’s work and teaching approach.

**Drawing as “learning to see”** This paper examines the role of drawing as “learning to see” in the iterative design process, particularly ways in which learning to see through drawing can become a strategy through which to locate the “white/open space of possibility” that can encourage intuitive thinking in design students.

Drawing is an activity in which ideas are realized and developed visually. Seeing in this context is not just looking, but observing and understanding (Tzonis, 2001, p. 22). “Seeing is making use of all the senses through the portals of the eyes. It is about engaging with the world in a tangible and tactile way”. (Lecanides-Arnott, 2010, p. 4) How well a student is seeing directly affects the quality of his or her drawing (Nicolaidis, 1969, p. 5).

In the Design Foundation Course at CPUT, students learn the principles of various drawing conventions used for planning and presentation purposes in the studio-based design subjects. Drawing is also offered as a separate subject, which includes life and object drawing. My approach to teaching drawing has evolved over many years, based on my own art and design education, the experience gained from my teaching of drawing in higher education, and the experience and expertise gained from my own creative work (see Figures 2-4). It includes two opposing ways of “learning to see” —gesture and contour drawing—concepts



put forward by Nicolaïdes (1969). These drawing concepts are adapted to fit the needs of foundation students, which vary from year to year.



Figure 2: Preparatory thumbnail gesture drawing, black fine-liner pen on paper;

Figure 3: *Paradise Flycatchers*, 1995. watercolour on paper, 295 x 265 mm. Drawings by the author.



Figure 4: *Crouching Figure Gesture*, 1982, compressed charcoal on A1 newsprint paper. Drawing by the author. This is a ten-minute gesture drawing capturing the essence of the artist’s model in the crouching position by constantly moving through the seen form with many loose, broken lines, relating and connecting the different forms in the figure through movement, achieved through the use of the flexible medium of compressed charcoal.

Gesture drawing (Figure 5) is done in quick energetic spurts, and is made up of many loose, broken lines searching for form through movement. In gesture drawing, the main idea is to develop visual perception through direct experience, by persuading the students to work from “within themselves”. Contour drawing (Figure 6) is done slowly in a careful considered manner, focusing on eye-hand co-ordination, defining the edge of a form, and is made up of continuous clean lines (Lecanides-Arnott, 2010, p. 4; 2012, pp. 128-130). The focus of “learning to see” through the use of gesture and contour drawing is centred upon the intention to assist design students to express their ideas visually by finding a personal balance somewhere between these counterpoised ways of seeing.





Figure 5: Gesture drawing, compressed charcoal on paper. Student work: Design Foundation Course, 2008.

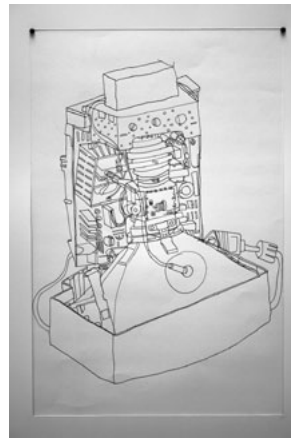


Figure 6: Contour drawing, black fine-liner pen on paper. Student work: Design Foundation Course, 2006.

### “Learning to see the whole” and the creative design process

Learning to see the figure as a whole and to relate the different parts to one another are significant aspects of the process of life drawing, which is included in the drawing course for design foundation students at CPUT. The fragmented way in which students tend to approach their drawings is often symptomatic of their approach to studio-based design projects in general.

Gesture and contour drawing deal with seeing “the whole”. Therefore, the ability to relate different parts of the human figure and to link different forms by connecting them through the surrounding negative space in object drawing is an important first step in learning to see “the whole”. The aim is to transfer the fundamental principle of “working with the whole” to the design process in studio-based design projects.

As Wiggins and McTighe (2005, p. 338) point out, the designing of a curriculum requires a backward approach, beginning with desired results in mind and then identifying the necessary knowledge and skill students need to acquire in order to achieve the results. In a design foundation course, the intended learning outcome in the subject of drawing is students' ability to see the different parts of a design and to reciprocally develop the design from the self-research stage to idea visualization, making, and completion of the final product (Lecanides-Arnott, 2013; 2012, p. 130). The concepts of seeing the whole and developing the different parts of a pictorial composition simultaneously should be considered as “core ideas” (Lecanides-Arnott, 2013; 2012, p. 131). In time, the ability to see “the whole” may be applied to 2-D and 3-D design projects. Seeing the whole in drawing is difficult for many students to grasp. Some students come to terms with the concept of working with the whole in drawing, and are able to transfer this to their studio-based design subjects, while others do not grasp it by the end of the foundation year. Nevertheless, with encouragement this critical connection can be made in time.

During the filmed interview of the focus group of students selected from the 2008 Design Foundation Course, observations were made with respect to learning to see through drawing. The interview revealed that students recognized the significance of the transference of skills from the drawing subject to other studio-based design subjects, particularly through the design process, as is evident in statements by participants in the focus group. “Glenda”, an interior design student, described her experience of how drawing was used to initiate the creative process of the visualization of ideas: “It’s like a key for a door, and when the door opens ... that’s what I have learnt from this course”. Another participant, “Ingrid”, who was



later an industrial design student graduating in 2011, recognized the fact that in life drawing classes drawing is not an end in itself, but a way to “see the whole” during the design process:

In terms of figure drawing, that is one of the most essential parts of this course, because you know, you like, apply it to everything, every [studio-based design] project that you do. To conceptualise as a whole, is basically what you’re doing when you’re doing figure drawings, and to take that back into your projects.

### **Raising critical awareness for “learning to see”**

An essential aspect of “learning to see through drawing” is the use of comparative analysis during the drawing sessions in the foundation course at CPUT. Learning takes place through discussion of the drawings of students and their peers by way of the group critique, led by the teacher. The significance of the use of the group critique in raising critical awareness (deep understanding) has been described as follows: “It is easier to accept and credit personal experiences through stories told by others...one can find similarities as well as contradictions, which can help to understand the varying process in others” (Raami, 2013).

During the group critique in the drawing sessions in the Design Foundation Course at CPUT, “the physical act of learning to see through drawing is transferred to the cerebral act of ‘seeing’ by looking at the drawings critically” (Lecanides-Arnott, 2010, p. 4) and analytically, interpreting what is observed. Observation is about the interpretation of what is being seen; as Kandel (2012, p. 208) has stated, “we unconsciously interpret the image as we view it; thus interpretation is inherent in visual perception itself”.

If the position is taken that interpretation is inherent in visual perception, then imaginative self-expression is key to the process of drawing and it should be encouraged by making students critically aware of the unique use of mark making and line in their own drawings. This is precisely what can be achieved through the group critique to encourage further engagement and development during the drawing process of the core ideas of working with “the whole” and the use of “negative space”.

### **Negative space, possibility, intuitive thinking, and innovative change**

Seen in an educational perspective, core ideas of a subject tend to be abstract and counter-intuitive to students, thus easily causing misunderstanding (Wiggins & McTighe (2005, p. 67). Wiggins and McTighe (ibid.) suggest that clarifying a learning goal by using basic terms can help the novice to see a point more clearly. In the visual language, “negative space” has been identified as a “core idea”, in contrast to “composition”, which is defined as a “basic term”. In order to assist foundation students to gain an understanding of the importance of negative space, helping them to understand the term “composition” is key. In pictorial composition, negative space connects and reveals forms and/or positive shapes so that the spatial relationship between these components is understood. Likewise, when dealing with the whole in 3-D design, for example, when designing a chair or a building, it is negative space that frames and contextualizes the problem and the solution. It is also to be understood that the relationship of form and meaning in shapes/objects is determined by the space that exists between them, referred to by Arens (2010, p. 5) as the “white space” (Lecanides-Arnott, 2012, pp. 54, 58-59).

At CPUT, drawing projects assigned to foundation specifically aim to promote students’ learning and understanding of composition and negative space. In the *Pumpkins and Boxes* chalk pastel drawing project (Figure 7), foundation students were encouraged to investigate the relationship between organic and man-made geometric forms—approached through the negative spaces that define them, working within a given format. The shadows cast by objects onto the negative spaces create shapes, which become active elements in the composition, capable of expressing the mood in the drawings. This drawing project not only helped students understand negative space and composition, but also encouraged them to see the context of the objects drawn and possibilities throughout the drawing process—to use





the parts to reflect the whole. Awareness of context is essential to the design discipline. As Leifer (2010) points out: “in design, context is everything”.



Figure 7: *Pumpkins and Boxes*, preparatory gesture drawing compositions, compressed charcoal on paper and final composition, chalk pastel on card. Student work: Design Foundation Course, 2006.

As may be seen in *Design Fundamentals: Less is More*, a graphic design project (Figure 8), the principle of working with negative space in drawing projects is transferred to the studio-based design subjects. This project deals with the “core ideas” of simplification, stylization, and the relationship of positive shapes to negative space. It also deals with the visualization of a design to tell a story sequentially in four successive frames—it is important for students to develop an understanding of pictograms and logos. One of the main purposes of this project is to make students aware that in typography kerning and character formation are dependent on the negative space surrounding the type, an essential component for describing form and meaning in specified typefaces.



Figure 8: *Less is More*, graphic design, pencil, marker, gouache on paper. Student work: Design Foundation Course, 2007.

In *Type as Meaning*, a graphic design studio-based project (Figure 9), form and meaning are determined by the negative space as much as by the positive black characters of the typeface itself. This project emphasizes the “core idea” of “learning to see” in order to clarify the nature of typography and the development of hand skills through “thinking by making”.



requiring students to paint the characters using fine bristle brushes and black gouache paint on paper.



Figure 9: *Type as Meaning*, black gouache on paper. Student work: Design Foundation Course, 2009.

Once the students have started to understand the concept of working with the whole within a given format in 2-D design compositions, the concept of negative space is transferred to 3-D design projects such as the 3-D *Puzzle for Children*, an industrial design studio-based project (Figure 10). In Figure 10, working with negative space has been understood because the designs function successfully as freestanding 3-D forms in space. The application of coloured film articulates the 3-D puzzles without detracting from the open spaces formed by the white card which functions in a similar way to the negative space that forms “the whole” in the *Less is More* compositions in Figure 10. Students learn to develop 3-D designs working from 2-D thumbnail prototype drawings that are translated into 3-D thumbnail prototypes in card, thereby gaining essential hand skills in accurate measuring and cutting. A critical awareness of negative space encourages students to work with composition as a whole. It is the space between the shapes/forms/objects that determines the relationship between those compositional elements in 2-D and 3-D designs in all the design disciplines (see Figures 8-10).



Figure 10: *3-D Puzzles for Children*, Industrial design 3-D puzzle constructions, inspired by the Venice Carnival, Corex card and coloured stick-on film. Student work: Design Foundation Course, 2011.

#### **“Learning to see” through drawing conquers fear**

In the first block of drawing, early on in the foundation year of study, there is generally a lack of confidence among the students as the figure drawing classes are interactive and require the students’ complete engagement in a very physical way. The directness of the



drawing process, which reveals visual strengths and weaknesses, often induces a fear of the unknown in the students. Nevertheless, as the students begin to engage with the drawing process and are able to discern that they are making progress, fear tends to diminish and confidence and self-awareness develop. Growing engagement in the drawing process encouraged by the iterative nature of the teaching approach, which includes the group critique, usually leads to exponential development in the way the students approach their work. The concentration and in-depth engagement required by the drawing process generate confidence in students within the Design Foundation Course at CPUT. A participant in the focus group, “Iris” who was a fashion design foundation student, described growing confidence stemming from the iterative nature of drawing:

My figure drawing...really pushed me to work with the form, to do more, and so I was like I can do more, but before I never knew that I could do more. I never knew that I could draw the form that I was seeing. But now I know that if I push myself, then I can do well, I can improve.

Although learning to see through drawing can assist students in gaining confidence, approximately ten per cent of the students in the foundation class struggle to “learn to see” through drawing each year at CPUT. This is confirmed by results from the internal observation of performance, as well as by the pass rate statistics in the formal examination of drawing from 2007 to 2011. For these students, alternative means of “learning to see” are employed in order to enable them to gain an understanding of visual language. Instead of drawing, they may visualize ideas through colour exploration, stylization and simplification, 3-D modelling, visual analysis of art and design images in the theory subjects, and through the drawing conventions of the different design disciplines, such as perspective and axonometric drawings and sections and plans to scale (Lecanides-Arnott, 2012, p. 131). It should be noted that students who struggle to draw may very well be weaker in other areas of the Design Foundation Course, i.e. both in the theoretical and studio-based design subjects.

#### **Flexible structures needed in the drawing curriculum to create the “white space”**

Careful organization of learning experiences and the way the curriculum is structured can contribute to the creation of the necessary “white space” (Tyler, 1949, p. 83). The Design Foundation Course at CPUT aims to encourage the “white space” to occur by spreading the teaching blocks of figure drawing throughout the year and interspersing them with teaching blocks in the studio-based design subjects (Figure 11). During the periods between drawing blocks, students are engaged in alternative studio-based design projects, allowing enough time for them to absorb what they have learned in the drawing sessions. Each period between drawing sessions is comparable to the “white/open space” that is necessary for intuitive thinking to take place and for the “imaginative leap” needed for creative change to occur (Cross, 2007, pp. 51-54). When students return to drawing after this “white/open space”, exponential development in their drawing may often be observed.

The creation of “white/open space” should occur at many different levels in order to enable the intuitive leap. During the filmed interview of the focus group from the 2008 Design Foundation Course class, “Katherine”, later a surface design student graduating in 2011, described her experience in the Design Foundation Course and spoke about a nurturing environment of possibility, which allows for creativity to take place: “I think we all come here with our own creativity and this course just exercises that creativity to lead us to where we want to be...”



Practical Subjects Course Outline			Design Foundation Course (Extended First Year)					CPUT		CT Campus		2009		
Cycle:	1	2	3	4	5	6	7	8	9	10	11	12	13	13a
5-Jan Term begins	26-Jan Less is More	16-Feb SD Potato Print	9-March ID Relief Tile	30-Mar 3D/FIG Draw	27-Apr	18-May Work-station	8-Jun Mat-box/3 Ma	20-July term 3 JD	10-Aug	31-Aug Arch Tech	21-Sept	19-Oct Exam Project	9-Nov	30-Nov
6	27 Less is More	17 SD Potato Print	10 ID Relief Tile	31 3D Puzzle Box	28 Object Draw/SD	19 Int.D Work-station	9 Match-box/3 Mat	21 JD Cast Ring	11 Arch Tech	1 Sept/GD Portrait/FIG Draw	22	20 Drawing Exam	10	1 Dec
7	28 Less is More	18 FD Bag Construct	11 ID Relief Tile	1-Apr 3D Puzzle hand In	29 Object Draw/SD	20 Int.D Work-station	10 Match-box/3 Mat	22 JD Cast Ring	12 Arch Tech	2 GD Self Portrait/FIG Draw	23 Handin extra proj	21 Exam Project	11	2
8	29 Less is More	19 FD Bag Construct	12 3D Puzzle	2 GD Labels	30 Object Draw/SD	21 Int.D Work-station	11 JD Jew Draw	23 JD Cast Ring	13 Arch Tech	3 GD Self Portrait/FIG Draw	Vac Use time for reworks	22 Exam Project	12	3
9	30 Less is More	20 FD Bag Construct	13 3D Puzzle	3 GD Labels	1-May	22 Int.D Work-station	12 JD Jew Draw	24 JD Cast Ring	14 Arch Tech	4 GD Self Portrait/FIG Draw		23 Exam Project	13	4
Sat														
Sun														
12 Mon Leturers return	2-Feb Colour Theory	23 FD Bag Construct	16 Fig Draw/3D Puzzle	6 GD Labels	4 SD/FIG Draw	25 Int.D Work-station	15	27 Obj Draw Sweets	17 Arch Tech	7 GD Self Portrait/FIG Draw	5-Oct term 4 Extra	26 Exam Hand-in	16	7
13	3 Colour Wheel	24 FD Bag Construct	17 Fig Draw/3D Puzzle	7 GD Labels	5 SD/FIG Draw	26 Int.D Work-station	16	28 Obj Draw Sweets	18 Arch Tech	8 GD Self Port/FIG Draw	6 project Subject of Choice	27 Exam moderation of	17	8
14	4 Colour Wheel	25 FD Machine sewing	18 Fig Draw/3D Puzzle	8 GD Labels	6 SD/FIG Draw	27 Int.D Work-station	17 JD Cut & Rivet	29 FD/ FIG Draw	19 Arch Tech	9 GD Self Port/FIG Draw	7	28 practical subjects	18	9
15	5 Colour Wheel	26 FD Machine sewing	19 Fig Draw/3D Puzzle	9 GD Labels/ reworks	7 Fig Draw/SD	28 Int.D Work-station	18 JD Cut & Rivet	30 FD/ FIG Draw	20 Arch Tech	10 GD Self Port/FIG Draw	8	29	19	10
16	6 SD Textile Gouache	27 Indaba Expo	20 Fig Draw/3D Puzzle	10 Vac	8 Fig Draw/SD	29 Int.D Work-station	19 JD Cut & Rivet	31 FD/ FIG Draw	21 Arch Tech	11 GD Self Port/FIG Draw	9	30	20	11
Sat														
Sun														
19 Mon Students register	9 SD Textile Gouache	2-Mar GD Typography	23 3D Puzzle/ FIG Draw	20-Apr Term 2 SD/Obj	11 Fig Draw/SD	1-Jun Work-station	22 JD Cut & Rivet	3-Aug Fig Draw/FD	24 Arch Tech	14 GD Self Port/FIG Draw	12 Exam Project in subject	2-Nov moderation ends	23	14
20	10 SD Textile Gouache	3 GD Typo.	24 3D Puzzle/ FIG Draw	21 SD/ Object Draw	12 Fig Draw/SD	2 Int.D Work-station	23 JD Chain	4 Fig Draw/FD	25 Arch Tech	15 Extra Project: Subject	13 subject of choice	3	24	15
21	11 SD Textile Gouache	4 GD Typo.	25 3D Puzzle /FIG Draw	22 SD/ Object Draw	13 Fig Draw/SD	3 Int.D Work-station	24 JD Chain	5 Fig Draw/FD	26 Arch Tech	16 of choice	14 Exam Project	4	25	16
22	12 SD Textile Gouache	5 GD Typo	26 3D Puzzle/ FIG Draw	23 SD/ Object Draw	14 Fig Draw/SD	4 Int D Work-stat	25 JD Chain	6 Fig Draw/FD	27 Arch Tech	17	15 Exam Project	5 Comm. Studies Hand-in	26	17
23	13 SD Textile Gouache	6 GD Typo	27 3D Puzzle/ FIG Draw	24 Object Draw/SD	15 Fig Draw/SD	5 match-box/3 mat	26 JD Chain	7 Fig Draw/FD	28 Arch Tech	18	16 Exam Project	6	27	18 Term Ends
Sat														
Sun														MLA

Figure 11: In the Design Foundation Course 2009, the studio-based design (practical) subjects course outline shows the four figure drawing blocks (light orange: Group A; dark orange: Group B) and the object drawing blocks (yellow: Groups A & B). “White/open space” is created in between the drawing blocks by spreading them throughout the year.

Without structure there will probably be chaos, while a too rigid structure may inhibit an environment of possibility, in which creative action and innovative change can occur. A structured environment on physical, conceptual, theoretical, and practical levels in which students can function is essential. It has to be an open and flexible structure that will provide the “white/open space” of possibility (Arens, 2010). The white space where problem and solution are kept open and ambiguous for as long as possible to allow for intuitive thinking and the creative leap—the “creative leap” that has been identified as necessary for intentional and innovative change to take place (Dorst, 2010; Cross, 2007, p. 114). The physical space between drawing blocks provides the necessary space for the difficult concepts of gesture and contour drawing to be absorbed by the students, allowing for creative action, a critical awareness, and deep understanding to result in exponential growth manifested in their drawings.

**Conclusion**

It is essential for designers to start with an understanding of how to use the visual language of art and design. They need to have a critical awareness of the visual arts as a field of study, and of how their chosen specialism relates to other design disciplines. As this paper has demonstrated, drawing has a significant role in the development of self-awareness and self-confidence in students. These attributes are necessary for the twenty-first century designer who needs to meet the demands of a changing world.

This paper explains that the novice designer’s perceptual, expressive, and analytical abilities can be developed through the use of traditional hand skills, particularly that of drawing as “learning to see”. By addressing the opposing approaches of gesture and contour drawing, students are able to engage in the subject of drawing as well as the iterative creative



process in studio-based design subjects.

This paper has also presented broad principles for the development of a conceptual framework for foundation education in design. The framework ensures lifelong learning to take place and enables the continuity and change necessary for designing in an increasingly complex world.

Based on the findings, analysis, and interpretation of the data from the Design Foundation Course at CPUT, it may be concluded that much of the curriculum in the historic foundation course of the Bauhaus remains relevant for design education in the 2000s. Traditional hand skills such as drawing and new digital technologies, as well as self-expression and comparative analysis through the group critique, all contribute to the development of critical thinking and should remain as “core ideas” in educating the designer.

In this paper, the ability to visualize ideas through drawing in the creative process has been shown to be a successful strategy in locating the “white/open space” of possibility, which allows for intuitive thinking and the imaginative leap needed for creative design action and innovative change. It is also shown that drawing is a link between “design thinking” (theory) and “design action” (practice). However, an area that still needs to be addressed is the degree to which linking and balancing these opposing forces gives rise to the “white/open space” that leads to intuitive thinking—a matter of critical emphasis.



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