

COGNITIVE SHOCK: A PROCESS STRATEGY FOR ILLUSTRATION DESIGN EDUCATION

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ABSTRACT:

This paper presents a student-directed studio teaching approach, (Jarvis 2004) for Illustration Design education, titled the 'Visualisation project'.

The project enables students to gain a deeper understanding of Illustration Design image making strategies, facilitates independent learning and endorses a reflexive practice methodology in order to build professional career trajectories (Ramsden 2003; Schon 1995). Strategically situated, it is a teaching strategy that enhances a student's ability to convey concepts and efficiently develop and produce images within a developing professional practice (Biggs 1996).

A focus on the relationship between 'solution generation' (Cross 2010), creativity and drawing is examined with an emphasis on sketching as a tool which aids 'vertical' and 'lateral transformations' (Goel 1991) of a design concept throughout the Illustration design process. A contribution to the understanding of design cognition in Visual Communication is considered and framed by discussing the impact of the teaching approach on design students.

OVERVIEW

The work of illustrators can be found across all areas of society, images that have capacity to transmit messages across cultures without the aid of written language (Wigan 2006; Zeegen 2005). Commonly illustrators are engaged to undertake communication projects which involve the visual representation or interpretation of a body of text, reflecting the text's meaning or extending a reader's perception and/or understanding of the issues being presented through written language (McCuley 2010). As image

makers, Illustrators are primarily concerned with and commissioned to develop images that facilitate communication for a broad range of industries including but not limited to publishing, education, entertainment and communication. To be successful as a practicing professional it is imperative that Illustrators develop an image making process and a succinct visual language that suits individual preferences and modes of thinking (Rees 2008; Zeegen 2005).

In a communication context, Illustration should be regarded as a design discipline due to the image making process strategies a practitioner utilizes in the development of visual communication solutions (Cross 2010). Each of the components or stages of these process strategies can be found described in a variety of ways, for example thumbnail drawing (idea generation), concept development (reflection and refinement of thumbnail drawings) and rendering (image production), or as McAuly (2010) describes them, comprehension (research and investigation), interpretation (visualization) and illustration (image production). For the purposes of this paper these image making stages will be described as 'Investigation', 'Visualization', 'Refinement' and 'Rendering'. If Illustration is to be regarded as a design discipline, specifically a Communication Design discipline as stated by International Council of Communication Design (2007), Illustration Education must incorporate and succinctly convey the knowledge of such process strategies to students, connecting and integrating both studio practice and theory.

At the University of South Australia, the Illustration Design course is located within a three year undergraduate Visual Communication program which emphasizes experiential learning through studio practice. Students specialize in Illustration Design in the second year of their study. It is a teaching and learning structure that is time poor due to institutional funding constraints consequentially presenting curriculum challenges for the Illustration Design studio courses. Students are allocated eight studio contact hours per week over a thirteen week period. Throughout the Illustration Design course, the teaching approach is focused on enabling students to learn and practice image making through directed and self-directed projects. Integrated into this approach, students are introduced to image making process strategies

that incorporate, idea generation, solution generation and problem solving through studio practice.

This paper centers on an aspect of the Illustration Design Studio program situated in the final year of undergraduate study in Visual Communication. Titled the 'Visualization project', it is the first studio practice project Illustration Design students undertake as they begin the course titled 'Illustration Major Design Studio Four'. 6 x 3 hour studio workshops (18 hours in total) are allocated to the project, which has been deliberately placed at the beginning of the course to maximize student learning and engagement. Intentionally disrupting student expectations and prior experience of Visual Communication studio education, the project, through its approach and structure, helps convey the importance of rapid idea generation through drawing and demonstrates image making process strategies that are integral to Illustration Design professional practice. Throughout the Visualization project students gain insight into the level of performance required for the successful completion of the course and their learning experiences become working models which can be applied throughout their professional careers.

PROJECT STAGES, VISUALIZATION, REFINEMENT AND RENDERING

The student project begins with the 'Visualization' stage of the image making processes previously identified. This stage is subsequently followed by stages titled 'Refinement' and 'Rendering' shown in Figure 1 below. In the Visualization stage of this project the teaching approach deliberately seeks to confront and challenge students. Students are required to develop images within very limited time restrictions responding to a variety of random text combinations they are not familiar with. They then reflect on and reinterpret their visual responses in consultation with peers and teachers, in the 'Refinement' stage, initiating a series of design iterations that aim to improve the communication of each image. In the 'Rendering' stage, students produce finished images according to parameters similar to those they may encounter in professional practice.

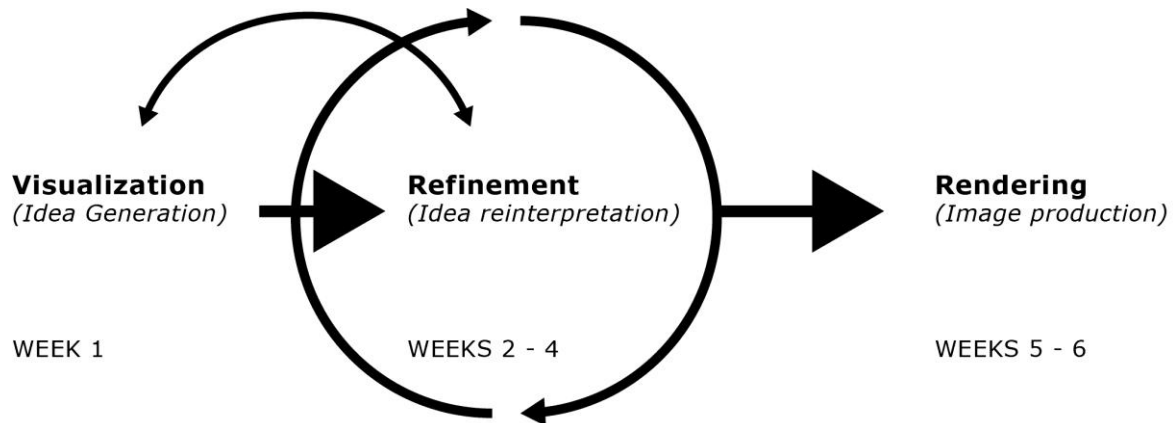


Figure 1: Visualization project process and weekly structure.

VISUALIZATION SKETCHING: STAGE ONE, WEEK ONE

In the early stages of a design process sketches are often used to communicate ideas. These sketches are often rapidly produced and help to explain ideas or develop an understanding of the problem being investigated (Rogers, Green, McGown, 2000; Schon 1995; Cross 2010). Students are required to produce small, rough sketches (maximum size of A5), within specific time restrictions in response to a set of three words, as shown in Figures 2 and 3 below. The sketches are intended as visual notation for ideas. Each word grouping is revealed to the students, a set at a time, and prior to a timed response session. As concluded by Hasirci & Demirkan (2007), if preparation, research and investigation take place prior to commencing the idea generation stage in the design process it often results in a more creative final output. In deliberate contrast to this conclusion this teaching strategy allows no student preparation for the initial response to each word combination, no point of reference is given, no allowance made for students to prepare through research or investigation, to prepare or collate material that will enable them to respond more 'creatively'.

Deliberately restricting preparation challenges and confronts students, ensuring they rely only on their immediate cognitive resources, current knowledge, imagination and intuition. Students draw on these internal resources through creative 'reflexive' practice (Schon 1995) in order to perform throughout the early stages of the studio exercise. This manufactured scenario mimics a professional Illustration environment in

which rapid, creative, productive responses are required from a practitioner. One of the primary teaching aims in this approach is to build student resilience when working under pressure, allowing them the opportunity to explore personal coping methods that they can retain for professional practice.

Approximately sixteen groupings of three unconventional word combinations are assembled by the studio teacher before the commencement of the studio session (Fig 2). These form abstract word combinations from which students produce mental images and ideas represented as sketches. As discussed by Arnheim (1993), the students must rely on individual knowledge, memory and experience in order to interpret the words as images. Associations, meaning and visual descriptions of the words are assimilated from the student's knowledge and life experience. It has been observed that the type of word combinations used in the exercise affect student responses; in particular, obscure, uncommon and complex words intimidate and negatively influence student engagement and their learning experience in the early stages of the project. It is suggested that this response is primarily due to the level of language knowledge and experience possessed by individual students. Also word combinations which are easily read as statements or descriptions and may imply meaning, can lead students to obvious or clichéd visual representations in their initial responses during the Visualization stage.



Figure 2: Word set examples

The duration of the first visual investigation session is approximately 30 minutes as shown in Figure 3 below. For example if 16 word sets are used in the 'Visualization' stage, students will complete 48 unique visual responses in 28 minutes. The initial response times are 15 seconds, 30 seconds and 60 seconds for each word combination. Each attempt at visualizing the word set requires a visual response from the student. 'These images supply the

designer with the primary nucleus from which the actual structure develops'. (Arnheim 1993)

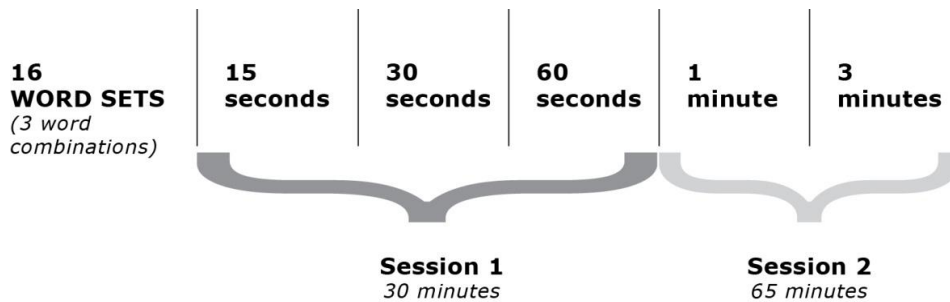


Figure 3: Visual investigation response times

Struggling to cope with the immediate requirements of the 'Visualization' project is confronting to most students as it brings into sharp focus, abilities in drawing, visual problem solving and time management. Often students perceive their abilities to be inadequate when tasked with a skill based activity such as drawing. As the studio session continues students are informed that their visual responses can be reexamined and reinterpreted with longer time restraints. Students are given a short break to study their sketches in order to investigate and clarify their visual ideas. This is a preparatory session for the second visual investigation session and provides an opportunity for students to reflect on their skills and image making approach. Each of the visual solutions created in the workshop are 'lateral transformations' (Goel 1991) that are aided by the process of sketching. Each sketch made in sequence becomes the reference point from which a lateral extension can be made in producing the next visual solution. In the initial set of student responses, sketching appears to be an aid for creative cognition. Lateral transformations occur in illustration when an idea is changed in each successive sketch resulting in a different idea, each unique idea indicates that 'divergence' or a change in thinking has occurred as shown in the example below (Fig 4).



Figure 4: Stage 1 example - 'Visualization', sketches showing lateral transformation, example by Adelle Irving-Guthrie, 2010.

Within the second visual investigation session in this workshop students are able to utilize any of the ideas they have for the word combinations. These ideas become a point of reference when completing the final 'Refinement' stage of the project. Students are instructed to clarify their visual ideas through aesthetic and content variation for example, composition consideration, improved drawing including use of the time as an opportunity to develop other ideations for the word combinations. This stage allows for both lateral and vertical transformation of visual ideas as the workshop continues. 'Vertical transformations' (Goel 1991) can be determined when an illustrator develops a concept, through successive iterations modifying and refining the sketch to convey the idea more clearly, if an iteration is a 'more detailed version of the same idea, then vertical transformation or 'convergence' (Rogers, Green & McGown 2000) has occurred.

STAGE 2: REFLECTION, REINTERPRETATION AND CONSULTATION

Each sketch/visual idea is reviewed and has the potential to be further developed through reflection and consultation with lecturers and peers. Reinterpretation of idea sketches is an important process for Illustration design students undertake and develop. It utilizes the ambiguous nature of sketching and drawing to capture an impression of mental imagery which then can be extended and leveraged to produce innovative visual solutions. 'The sketch is not necessarily a full representation of 'the mind's eye on

paper', but instead represents an on-going process of selection, reflection and change' (Stones & Cassidy 2010, pg. 441).

Students also practice narrative development by questioning and revising the legibility and content of their images, reflecting and refining communication clarity. They are required to analyze and reflect on their visual ideas focusing specifically on the narrative to be conveyed through images. Whilst the visual ideas are derived from a specific word combination, a literal representation of these words is not required. Students are encouraged to author a visual narrative utilizing metaphor and analogy to communicate with an audience. In selecting which ideas to pursue, students are guided by a framework that has a bias towards lateral transformation emphasizing innovation, unexpected narrative, juxtaposition of metaphor and dynamic image composition. Ongoing development of each image enables students to refine their practical skills in, drawing, composition and tone. The result of this process can be seen in Figure 5 below which shows both lateral and literal transformations of a response to the word combination 'India, Southern Cross, Death', as well as the final illustration completed in the 'Rendering' stage.

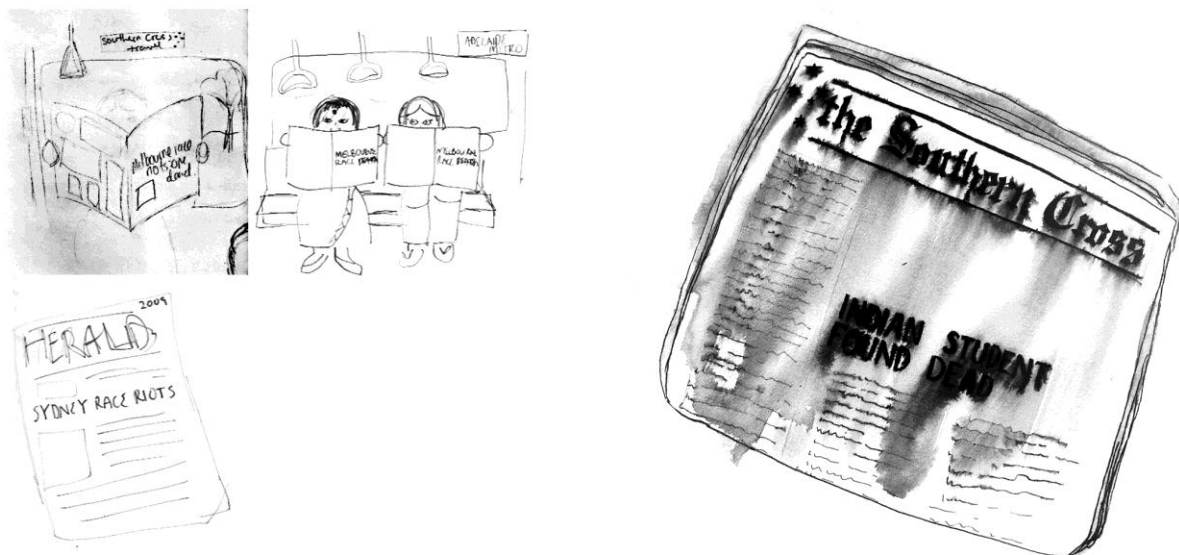


Figure 5: Stage 2 example - 'Refinement' - Literal transformations example by Adelle Irving-Guthrie, 2010.

STAGE 3: RENDERING AND IMAGE PRODUCTION

For assessment, students are required to produce three images based on the visual ideas they have selected and developed. The primary focus in this stage of the project is on developing the technical skills required to make images. Specifically, these are drawing quality, and professional application of illustrative media. Choice of which illustrative media to use for the images is student directed, based on personal preferences, image making abilities and the level of image legibility required to convey the idea and narrative. In this final stage of the project, sketches that have been developed and refined in the previous stages go through a final transformation. This third transformation, shown in Figure 6 is described by Goel (cited in Rogers, Green, McGown 2000, p. 461) as 'duplication', it is a movement from a sketch or drawing to an identical representation which is refined in its final presentation. In an Illustration context, this is the final stage of the image making process. It involves the 'Rendering' of the image to a sufficient level that it could be presented for use by a client in a professional scenario.

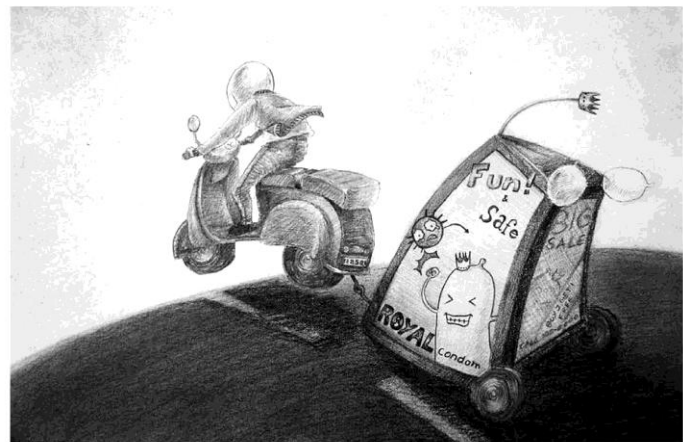


Figure 6: Stage 3, 'Rendering', duplication example by Jasmine Huang, 2010.

As professional practitioners Illustrators are required to accommodate specific image requirements when they are engaged to develop and produce an image. Students are required to address specific parameters in making their final image. These parameters are as follows; each image must be A3 in size, in single colour only, and must be presented as a high quality digital print, as shown in Figure 6 above. Parameters such as these restrict student choice in the final output of their images giving them an experience similar to professional practice. Incorporating elements of personal direction and

choice engages students at a deep level with the studio task and learning. In a teaching and learning context these image requirements focus students on developing their rendering and production skills. A requirement of single colour, removes the complexity of colour theory, allowing students to focus their practice on form and tonal perception. Final project submission as a digital print requires students to consider the illustrative media and image making strategy in order to ensure the illustration can be easily digitized for presentation and industry reproduction.

STUDENT-DIRECTED LEARNING

Jarvis (2004, p. 153-156) describes student-directed learning as facilitative teaching or experiential learning, this is the primary teaching model used throughout the Illustration course at the University of South Australia. This model of teaching, presents students with practical problems as a part of their learning process, students apply subject knowledge and learnt processes in proposing solutions. Information, observation and reflection on the subject area are discussed or 'facilitated' by the teacher/educator with the learner or learning group. Each student is required to structure a personal investigation and educational experience by developing their own ideas in relation to the given problem. Student-directed learning acknowledges that each student carries with them life experiences and prior knowledge. These are regarded as a resource which can be utilized by learners and are accentuated by the structure and experience of the Visualization project.

Student-directed group learning methods applied during the Visualization project, listed in order are, 'problem based learning', 'group discussion' and 'workshops' (Jarvis 2004). These learning methods enable students to gain a deep understanding of Illustration image making processes. Student-directed teaching approaches build self-confidence and give students a sense of personal control over their studies and career direction. It is an approach that caters for individual learning abilities and accommodates a variety of learners regardless of their life experience, social background or physical abilities (Mackeracher 2004). Students become well rounded in their approach to learning and develop learning abilities which can be applied

outside of their field of study. Ramsden (2003, p. 60) describes these as, 'imaginative, flexible and adaptive skills' which are invaluable within professional practice. In design education, student-directed learning methods such as these are highly effective in delivering core design principles and developing independent learning skills, elements which are critical for success in Illustration Design professional practice.

Students are closely monitored and supported by staff through the stressful experience in the 'Visualization' stage of the project. In particular the initial workshop is accompanied with clear explanations and succinct examples that enable students to connect the overall structure, outcomes and learning goals of the project to studio and professional practice. Enjoyment is the key and is encouraged throughout the Visualization project; it facilitates 'deep learning' (Ramsden 2003). Enjoyment develops and enhances student commitment to their study. Teachers project an 'image' when instructing and guiding students, the teaching strategy utilized has a dramatic impact on student understanding and engagement (Killen 2007). Staff must be relaxed, supportive, encouraging and attempt to alleviate student stress and self-doubt by explaining the stages of the image making process strategy they are embarking on throughout the project. It is important to highlight the opportunities students will have throughout the following studio workshops to correct and refine their drawings and continue to development the narrative content of their images.

AN IMAGE MAKING PROCESS STRATEGY FOR ILLUSTRATION DESIGN EDUCATION

As a studio based teaching approach the Visualization project sets out to use image making process strategies to aid student learning. Knowledge of solution generation methods, problem solving approaches and project time management are essential for design students and professional practitioners. The Illustration design activities in this project are transferable to other design disciplines. Each stage is named, 'Preparation', 'Visualization', 'Refinement' and 'Rendering' only to enable immediate recognition of the terminology by Illustration Design students, however this structure is typical

of processes found across many design disciplines, described in similar terminology and sequence (Cross 2011; McAuley 2010).

Also similar to other design disciplines is the cyclic nature of the design activities which can be revisited at any point throughout a project depending on specific constraints and dynamics that can influence it. For example, concept or delivery deadlines (time restraints), influence or feedback provided by a client or colleague may require specific project activities to be revisited. As discussed by Cross (2011) attempts have been made to develop 'an ideal design process' through methodology, structure and sequence of specific activities. However as Guindon reported (cited in Cross 2011, p. 125), designers do not strictly adhere to process strategy sequences and will move rapidly to and from design activities such as 'clarifying the problem' or 'searching for concepts' as the project requires. This switch in activity often achieves more creative outputs than relying on a single idea generation design stage. Visser and Guindon (cited in Cross 2011, p. 125), describe this behavior as 'reducing cognitive cost', resolving design problems in the most fluid and time effective way.

Throughout the Visualization project, this design behavior is encouraged by focusing students on the importance of sketching as a solution generation method and a reflective process. According to Goel (1991), sketches play an important role in early design development by allowing exploration and creativity while minimizing fixation on a specific concept early in the design process. The reliance on sketching in the initial stage of the Visualization project allows this important aspect of drawing to be discussed and experienced by students. Due to its nature, drawing as idea generation (sketching), is 'syntactically and/or semantically dense and/or ambiguous' (Rogers, Green & McGown, 2000). It aids the creative cognition of practitioners in examining and documenting a range of ideas over a short space of time.

CONCLUSION

The Visualization project is a teaching strategy that exposes a student to self-directed and experiential learning through personal engagement, choice and directional control of a studio project. It provides a process strategy for constructing images, which utilizes creative cognition and reflective practice, crucial skills which allow Illustration practitioners to develop a 'personal vision' or 'voice' (Heller 2006; Frazier 2003). This 'vision' can best be described within the context of process and outcome, that is, how an illustrator sketches, the marks produced and how these are composed as visual solutions. It is the foundation of a personal visual communication language through which an illustrator can be individually identified, understood by an audience and flourish in the market place.

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