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Exquisite corpse: A contemporary marriage of art and anatomy

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As universities are encouraging more creative interdisciplinary collaborations in teaching and research it is timely to reflect on how the contribution of the visual arts and design practitioners is valued in such pairings. The distinction between the senses and thinking outlined in Rudolf Arnheim's "A Plea for Visual Thinking" provides the historical background to a longstanding educational bias that privileges and esteems reason over the senses, and by extension, the sciences over the arts.

This paper discusses a new contemporary approach to interdisciplinary teaching for a traditional pairing of Art and Anatomy, one that resists any notion of a marriage of convenience, in which the arts merely serve to illustrate the knowledge of sciences, but one designed to enhance medical and visual art students' appreciation of both disciplines.

I outline the nature of the collaboration with the School of Biology and the way theory and practice are delivered in the studio and anatomy laboratories and suggest that deep knowledge and original thinking derive from practice-led research and that the value the visual arts bring to other fields is the knowledge of how to cultivate both reason and intuition.

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There is a high demand for interdisciplinary collaborations, particularly in the sciences, to bring new perspectives and innovative thinking to solving the complex problems facing the world (Mutz, Bornmann & Daniel 2015, p. 30). It is worthwhile, therefore, to consider how the contribution of visual artists and designers is valued partnerships with the sciences. Can these collaborations overcome the bias that Rudolf Arnheim (1980, p. 489) states, exists in the educational system privileging reason over the senses, science over art? What are the ways interdisciplinary collaboration can be structured to avoid the arts being simply used to illustrate the ideas of the sciences? In my experience as a visual artist and educator, reducing art to a set of practical of skills vastly misrepresents the depth of its knowledge. There is scant mention in the scientific literature on interdisciplinary studies that specifically refers to visual arts as having knowledge, and as such, it stands to reason that the role of visual art practitioners and designers in collaborations with scientists will go undervalued.

In this paper, I propose, the *Exquisite Corpse*, an intensive course offered through the ANU, School of Biology, as an innovative, contemporary model for the interdisciplinary study of art and anatomy. The course designed and delivered by Dr Alex Webb, Senior Lecturer in the Medical Education Unit and Associate Professor of Anatomy, Krisztina Valter and myself, advocates for a balance of art and anatomy in the curriculum and as such is open to applications from students across the arts and sciences. To give context to the unique structure of the course, I discuss the historical background to the pairing of art and anatomy and the debates on the benefits of art and science collaborations. I state the case for the way *Exquisite Corpse* engages practice-led inquiry to advance student knowledge of both art and anatomy, achieve deep learning outcomes and promote original thinking. In teaching the art component of the course, I conclude that the particular value the visual arts brings to interdisciplinary study is its flexibility to explore and integrate divergent systems of knowing and experiencing the world: intertwining the objective with subjective, the reasoned with the intuitive.

The work, *Psychonotis microphylla rivularis*, (Fig.1) made by a ceramics student at the ANU, School of Art & Design during the second iteration of *Exquisite Corpse* is an example of visual art knowledge, borne out through speculative inquiry. On a first encounter, this work exhibits a basic knowledge of anatomy and good knowledge of the

technical skills to make ceramics. Less obvious, perhaps, is how the work displays knowledge of the material history of ceramics and how our encounters with objects of art can generate affect. The three bone-white ceramic bowls, each decorated with an anatomical drawing of a partial vertebral column, forms an image of a complete spine when stacked and aligned in a specific way. The display of the bowls in a tower of interconnected units suggests the vertebrae stacked upon one another, balanced to hold the body upright, but also to allow for rotation, flex and extension of the spine.



Fig. 1. Henrietta Farrelly-Barnett, *Psychonotis microphylla rivularis*, 2017. Black underglaze, stoneware, dimensions various. Photo: courtesy of the artist.

Through the history of ceramics, the history of human development can be traced (Haynes 2013, p. 6). Commonly, we hold bowls, gaining comfort from turning them in our hands. The poignancy of this work is in the tension it sets up between stimulating our inclination to touch and turn the bowls and the realisation that this natural action would sever the image of the spine. More than illustrating the spine, this work accesses the imagination and promotes a deeper and more felt appreciation of the spine's essential function and features.

Background

The study of art and anatomy is not a new concept. During the Renaissance artists were evolving a greater naturalism in their depiction of the human body and anatomy was burgeoning as an empirical science. (O'Malley, Sounders & Vinci 1952, p.13-16). The anatomical drawings by Leonardo Da Vinci are acknowledged by the distinguished historians of Renaissance medicine, Charles D O'Malley and J.B. De C.M. Sounders, as 'representing the greatest heights reached by the artist-anatomist' (1952, p.15). However, O'Malley assesses that while Da Vinci's research contributed original knowledge to anatomy, he was never an anatomist per se, because he intuitively pursued his own interests and lacked the necessary systematic approach of an anatomist (1952, p.15). After Da Vinci, correct, naturalistic anatomical drawings began to be valued for their pedagogical integrity and anatomical illustrations produced were done so under the expert supervision of anatomists. (O'Malley, Sounders, & Vinci 1952, p.16) Five hundred years on, technological advances have allowed for exponential growth in the fields of anatomy and the visual arts, resulting in a radical separation of knowledge into tributaries of specialisation. Art and Anatomy have grown apart. Still, in my experience teaching, the observational accuracy and beauty of draughtsmanship found in Da Vinci's anatomical drawings have come to exemplify what many of my students expect from collaborations of art and anatomy and the standard by which many judge their own artistic efforts.

The challenge in designing *Exquisite Corpse*, was to connect the competing learning requirements of art with those of anatomy in a way befitting the 21st century. Rudolf Arnheim (1980, p. 489) states *In a plea for visual thinking*, there is a bias in the educational system that privileges reason over the senses, science over art. Arnheim(1980, p. 489) traced the way the visual arts and sciences are differently valued back to the 17th century philosophy of Rene Descartes those starting premise in the sixth *Mediations* was that he could not trust his sense perceptions. Descartes reasoned that all he could be sure of was that he thinks (Arnheim 1980, p. 489). Later, Leibniz cast reason as a higher order cognition and sense perception as belonging to a lower order (Arnheim 1980, p. 489). The consequence of these influential philosophers was that the thought required for art was deemed inferior to thought required for the sciences. Arnheim's argument (1980, pp. 489-497) dismissed the logic of the claim that perception and thinking are separable but from my experience working in art education in Australia, the old hierarchy still exists. In secondary education the visual arts have

become marginalised in a curriculum and at tertiary level, art is a specialist field. Studying the visual arts involves learning how to align practice with research, observation with expression, thinking through materials and processes with experimentation and intuition. It involves developing a knowledge of material history and theory in the context of developing one's own conceptual interests, and at each step, to engage in critical reflection and analysis about the affect of the work produced. To paraphrase: art school teaches students how to do *practice-led research* (Bolt 2007, p.29). It is a process little understood outside the walls of the art schools, such that they still exist.

It is a reality of the education system that students studying art become somewhat removed from those pursuing science. In the 2009 conference *Art and Science Now: The Two Cultures in Question* held at the Tate Modern, Anthony Grayling, Master of New College of the Humanities at Oxford and other luminary figures, presented papers on the position 50 years after the landmark essay *Two Cultures and the Scientific Revolution* written by C.P. Snow, in which, he set out the reasons why we should be concerned over the gap between the arts and sciences.

Snow warned:

There seems to be no place where the cultures meet ... The clashing point of two subjects, two disciplines, two cultures-of two galaxies, so far as that goes - ought to produce creative chances. In the history of mental activity that has been where some of the breakthroughs came. The chances are there now. But they are there, as it were, in a vacuum, because those in the two cultures can't talk to each other (1961, p 17).

Grayling (2009, min 1:01:00) claimed that gulf between the two cultures has increased as the sciences have grown in complexity, requiring evermore specialised education. Grayling (2009, min. 59:00) described the division as one of different mindsets, with those in the arts favouring closed narratives and the sciences dealing in open-ended propositions and speculation. Grayling's comments make it clear he does not understand the nature of practice-led research in the visual arts. His characterisation of art means art is only capable of illustrating, not informing the sciences.

There are many publications advocating the benefits of introducing the study of art into science. In her essay in the *Lancet*, *What can the arts bring to Medical Training?* Suzy Willson, the Artistic Director of Performing Medicine, explains the way the arts can help

teach doctors respect for the rights of patients (2006, p. S15). Dr Michael Flanagan, assistant dean for curriculum and student affairs at the University Park Regional Campus at Penn State's College of Medicine,(Penn State 2016) who also teaches art to medical students, identifies a trend over the last decade with medical schools in the U.S. investing in art related curriculum and programming. Flanagan (Lesser 2017) states the arts are 'valuable in developing essential skills that doctors need, like critical thinking and observational and communication skills, as well as bias awareness and empathy'. While these outcomes are all desirable, they are only for science students and the exposure to the arts is limited as to undervalue the knowledge and rigour of its practice.

Controversially, prominent art historian and critic, James Elkins writes in *Aesthetics and the Two Cultures*, that instead of a marriage of art and science, they should simply agree to go separate ways, because fundamentally, they do not understand each other(2009, pp.34 -50). His point is one of values (2009, pp. 34-50). According to Elkins, art will often take inspiration from science, though it may be only partially understood. Science, on the other hand, values evidence, hypothesis, experimentation and conclusion. What makes good science, even good looking science, is not what makes good art (Elkins 2009, p.36-37).

Concept

Weighing up these opposing views on the value of art and science collaborations informed to my contribution to the *Exquisite Corpse*. The initiative for the course came about because the biology lecturers had been incorporating low fidelity modelling of anatomical relationships in their teaching and found using drawing and 3D modelling were powerful ways to learn anatomy. To develop this they sought to bring in an artist to teach the art processes. What they proposed was a truly integrated approach to learning both anatomy and art, with balance embedded in the structure and delivery of the course. *Exquisite Corpse* is offered to students undertaking studies in science and across the arts and aims for a 50/50 representation of the two disciplines. Although we have not yet reached this target for arts students, it is a crucial and distinguishing feature of the course. While there is literature about introducing art to medical students, there is scant reference to bringing visual arts and science students together in learning situations. Following the directive of CP Snow's argument, what is required is more opportunities for art and science students to come together, to have first-hand experience of the knowledge, problem-solving and working methodologies of each other's disciplines. It is important for the generation of new knowledge to be open to

learning opportunities and free from the inhibiting prejudicial attitudes which unwittingly arise from the disciplines being so separate.

The course design

The *Exquisite Corpse* was delivered over three weeks, initially focusing on key concepts in art and anatomy, with practical activities held at both the School of Art & Design and the anatomy labs at the Florey School of Biology. The course concluded with an exhibition in the Photomedia gallery showcasing the independent research project those brief was for an original creative work investigating an aspect of art and anatomy. The ability of the course to deliver strong learning outcomes can be attributed to being taught by discipline-specific lecturers. My colleagues and I are dedicated researchers and value the integrity of our own fields of inquiry, as well as being passionately committed to negotiating teaching an interdisciplinary path.

Orientation day was held at the National Gallery of Australia to challenge student expectations about what kinds of art could be relevant to questions of anatomy beyond the ideals expressed in the Renaissance. I wanted to engage students with the affect of a work of art and to begin unpacking how that might be achieved. Fiona Hall's *Wrong Time*, 2016 and *Defying Empire: 3rd National Indigenous Art Triennial*, 2017, both exhibited the power of visual imagery to illicit emotional responses and convey messages of cultural and political significance and both had specific references to anatomy, race and biology. Students analysed the way works affected them through the narrative content of the work, the media choice and handling, the use of scale and viewpoint, the perception of colour, tone and texture, as well as how a work could convey information about the physical body of the artist through either its scale, gesture or the dexterity required for its rendering.

The course proceeded with art and anatomy lectures and demonstrations followed by practical activities. Each day students were presented with new art references for inspiration and new concepts to consider. Conventional and non-conventional techniques and materials were introduced for the students to experience and test out. From life drawing with charcoal, ink and wax in response to the general anatomical postures and the skeletal system, to creating small scale models of the vertebra and the bones of the hands feet using sugar paste and plasticine, students were able to experience thinking through manipulating materials and to discover a sense of awe at the specificity and complexity of often seemingly simple anatomical structures.

As the anatomy investigated the muscles, thorax and neurology in the laboratory using prosections and a cadaver, students explored painting and stop-motion animation. In all these hands-on experiences the students were encouraged to reflect on the materials and processes and what they brought to their understanding of both art and anatomy.

For the independent project, students researched art and anatomy following their own interests. The brief of an original creative work meant they could not just follow a set of rules or copy from examples online. In developing their artwork, the students were encouraged to reflect on what motivated them to study their field in the first instance and to draw on personal experience for inspiration. They were reminded in the words of Susan Best (2011, p.1) 'what is central to art is its power to affect us, to generate emotion'.

One science student framed her independent work on her injury and the journey to healing which had motivated her to study medicine. In her artist statement she wrote about her art research of *Kintsukuroi*, a Japanese term for the ancient art of filling cracks in repaired ceramics with gold, often making the repaired piece more beautiful than the original. (Lincoln 2017). In her photographs, (Fig. 2) she used stitching and gold paint to show her process of healing after shoulder reconstruction. Her personal investment in the project was such that it prompted her to reflect in her visual diary that it was 'a life changing experience.' (Lincoln 2017)

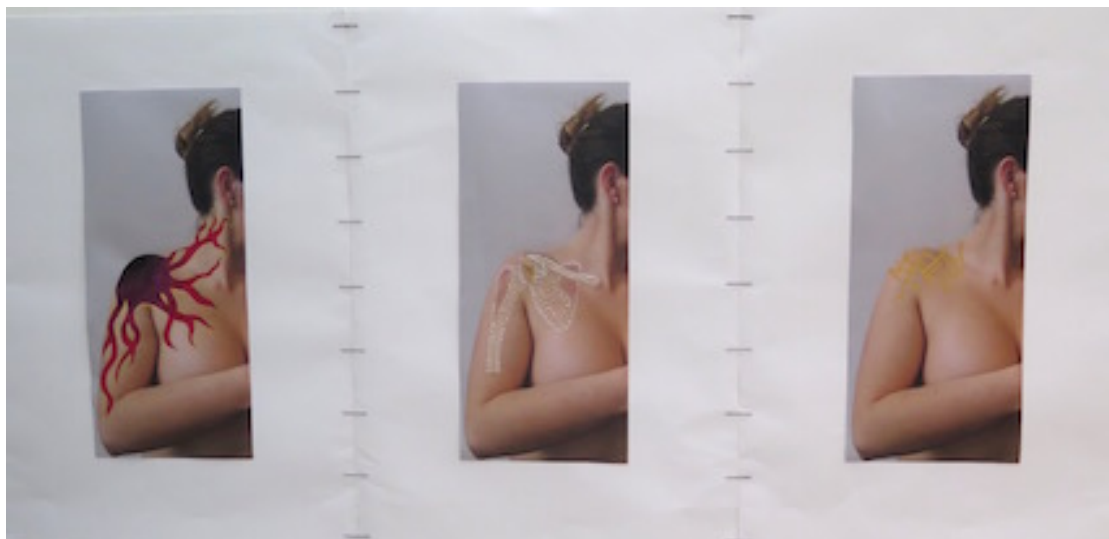


Figure 2. Bethany Lincoln, *Kintsukuroi*, 2017 handpainted and stitched photographs. 84 x 180cm Photo: Elisa Crossing.

An art student from the Gold and Silver workshop made an inspired jewellery box those interior lining attached to both the lid and the base to become the mechanism by which the box opened and closed. (Fig. 3.) She told me the idea came to her from thinking of the body as a container, and making the connection to Andreas Vesalius's anatomical drawings showing the mesentery, a thin, fan-shaped connective membrane, which attaches the small intestine, pancreas and spleen to the back wall of the abdomen (Vesalius et al 1973, p.163). This breakthrough in design thinking exemplifies the value of interdisciplinary study as a catalyst for new creative research.



Figure 3. Murien Pluchino, *Jewellery box*, Brass and fabric, dimensions various. 2016.

Photo: Elisa Crossing

At the end of the course, one student reflected on his experience in his visual diary:

As a science student, I was unaware about the complexity and beauty that is in the world of the visual arts and I feel this course has helped me achieve a much stronger appreciation of the subject. Furthermore, studying the human body through the visual arts opened many new perspectives to how you can study Anatomy, which I had never considered in my previous experiences. I feel the course reinforced knowledge of different structures within the human body and

how they work together to achieve a specific function. For example, the silhouette drawings I have completed allowed me to see and communicate the superficial muscles and bones in a way I had never considered prior. This was an aspect of the course I loved as it was constantly challenging assumptions about Anatomy I had made earlier. (Knowles 2017 n.p.)

Discussion:

Exquisite Corpse set out a contemporary model for an interdisciplinary study of art and anatomy. With balance embedded in the very structure and delivery of the course, it demonstrates how to value the integrity of both disciplines and to avoid the limitations of other collaborations, in which, the arts serve the sciences. In response to Elkins' great warning off of art and science collaborations, *Exquisite Corpse* is not designed to teach art students to be scientists, nor science students to be artists; but to teach the significance of practice-led-research as a means to advance knowledge. At essence both art and science are ways to investigate the world; both thrive on curiosity and open-ended speculation and both trade in doubt much as certainty. They may work with different methodologies and different values but, as C.P. Snow identified, they both benefit from being apart of each other's conversations (1961 p.53).

Conclusion

The expertise of visual arts is in how to integrate reason with intuition, objectivity with subjectivity. Through collaborations with anatomy, the visual arts expands opportunities for researchers to develop deeper connections to their knowledge and to exercise original thinking. The value of the visual arts, when allowed to operate in the fullness of its practice and not just as an illustrative tool in interdisciplinary collaborations, is as a means to progress research and innovation.

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