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BETWEEN POSSIBILITIES AND PLACES: COGNITIVE METAPHOR, CREATIVITY, ART AND EDUCATION

Creativity: 'The process of having original ideas that have value' (Ken Robinson, 2009)

Introduction

Art emerges when every facet of sensory experience is channeled through the creative process. Artists may not exclusively draw from the visual domain when applying brush to canvas or musicians from the sonic world alone when developing new compositional ideas; the expression of the whole self is integral to the discourse of artistic practice and reception. The senses being the only available form of information, all creativity therefore stems from the processing of personal sensory experience and cognition. Art exists as a metaphorical and representation process of communicating ideas and experiences drawing from immediate experience, and memory of touch, sight, and sound, framed by culture, historical context, and materials, and driven by exploration and inventiveness. Bernbach's insight¹ "*coming up with an idea is a process, informed by the new combination of old elements*" was born out of the world of commercial advertising, but does exemplify the typical view of creative endeavour; if all forms of creativity ultimately involve the reorganization of experiential information and the development of new patterns and combinations within the bounds of discipline, how can we tame this knowledge to render it meaningful and applicable for creative artists and is there virtue in further exploring the dialogue between different creative domains given the myriad of evolving technological conduits?

A Problem Defined

In arts education, personal expression and the development of craft and technical expertise, tends to emphasize creativity as an integral and valuable part of the world rather than simply a response to the world. Arguably discussed most openly

¹Taken from Webb Young, J., 1965, A Technique for Producing Ideas, Thinking Ink Media

in the arts (Wilson & Lennox, 2012), creativity is more routinely the objective of pedagogic practice and the focus of learning. The consequence of history is however for a level of segregation between artistic practices to have become entrenched. Whilst technology continues to inaugurate new multimedia domains and open new opportunities for integrated approaches to creative practice, specialization in either textual, visual, or auditory domains predominates in education curricula around the world.

The precepts of this text are that integrated approaches to arts practice and the understanding of the creative process, as expressed through common theoretical models, can facilitate, stimulate and enrich creativity, and that creativity itself is fundamentally a process involving integrated sensory experience and recall; the recombination and recontextualisation of experiences. Challenging the specificity and security of artistic domain classifications, the boundary between visual and auditory realms when collapsed, through technology, provides for new approaches to collaboration, artistic practice and creative process and creative outcomes.

Creative stimulation and provocation can provide structure and increase fluency of ideas within a creative process, and significant opportunity exists for the enrichment of arts education and wider development of creativity through the arts. Exploring the role of cognitive metaphor in artistic creativity when working across auditory and visual domains, this chapter presents practical insights about the application of creativity in the arts, models of educational practice for the development of artistic creativity, and explores more general questions of creative thinking and thought processes. As a point of departure this chapter will explore musical creativity from the perspective of nurturing creative activity within an English undergraduate programme.

The Creative Musical Process

What does it mean to be creative musically? To what extent is coherence in structure a necessity that constrains expression with a stylistic boundary, within which musicians may establish identity and consistency facilitating commercial appreciation and artistic longevity? As Mehltau states – “a truly creative musician is one who is simultaneously rooted in the past and expressing something new”². Where does the ‘new’ reside? If novelty is a motivating factor, what would the consequences be for musical expression and the maintenance of performer/compositional identity? Musicians are very firmly rooted in the past; it is ingrained within the disciplined rehearsal regimes and within long established listener expectations. Very often within tightly bound stylistic constraints musicians strive for individual expression and commercial recognition through adaptive interpretation, and sometimes subtle, nuances of individual muscle memory, performers establish a sense of expressive ownership. Compositions may largely follow structural ex-

² Mehltau, Brad (2010)—Jazz Pianist, *Jazzman Magazine* <http://www.carnegiehall.org/BlogPost.aspx?id=4294973887> <accessed 30 July 2013>

pectations to comply with stylistic definition but the boundaries offer enticing motivation within which a variety of invention prospers. Boundaries can stretch, break, and merge to form new styles but this is often not the jumping-off-point within musical expression; coherence within a largely abstract system, as music is, is a primary concern commercially and individually.

The Contextual Gatekeepers

Creativity within a very limited pallet of expression, and frequently with a limited set of tools, steered towards specific commercial outlets, has its risks. Who decides when a creative artifact is original, the student, the teacher, the artist, the audience? In the commercial world of music production, ownership is secured and protected through copyright regulation and there are a number of relatively high profile cases in which copyright ownership is deemed infringed³ which could be costly on more ways than one. There may be a case here for the development of copyright verification software to function as an electronic gatekeeper in a similar form as the hit song science database technology that has appeared in recent years on the WWW⁴.

In many ways then originality within a musical context is an increasingly difficult activity because of the established habits of behaviour governed by stylistic context; Byrne (2012) expresses this well: *“I had an extremely slow-dawning insight about creation. That insight is that context largely determines what is written, painted, sculpted, sung, or performed. I believe that we unconsciously and instinctively make work to fit pre-existing formats”*. How then is novelty within music ever achieved without surrendering to the whims of intuition and how can creativity, musical or otherwise, be encouraged outside of a traditional musical educational framework which depends more often upon musical analysis to develop craft skills than upon creativity itself? Early undergraduate compositional artifacts are generally re-creative facsimiles of earlier successes.

Colourful Language and Noisy Pictures

Clearly one answer would be to integrate educationally, insights into the creative process to facilitate favourable environmental conditions within which creative thinking may be more easily provoked. Familiar stylistic habits may also be broken through the implementation of strategies within a *creative toolkit*, which could include the use of metaphor and cross-modal strategies to stimulate shifts in musical perception⁵.

The concept of tone ‘colour’ being perhaps the most obvious use of visual metaphor to describe aspects of musical experience, there are numerous intercessions between the scientific and artistic consideration of perception. The interrelation-

³ For example: BBC News <http://news.bbc.co.uk/1/hi/8497433.stm> <accessed 30 July 2013>

⁴ musicray: <http://blog.musicray.com/tag/hit-song-science/> <accessed 30 July 2013>

⁵ Brown, M and Wilson, C., 2013, presentation at ACA Maine 2013: http://prezi.com/phfbu-5yhani/?utm_campaign=share&utm_medium=copy

ship and commonality of terminology to describe aspects of auditory, visual, physical and emotional experience is a common feature of most languages. Newton's careful calibration of the optical spectrum to map to the seven-note Western diatonic scale leading Rimington (2002) and others to produce devices to express more formal interrelationship of music and colour are well documented.

In the arts, the synaesthesia of many practitioners is also explored and a general interest in cross-domain creativity more common still. Scriabin was the first to include a notational staff in the manuscript score for colour in his work *Prometheus: The Poem of Fire* (1910) following prolonged work with the Western cycle-of-fifths to which he allocated spectral colours. In the visual arts, Kandinsky has a well-documented interest in the relationship between the arts and as Expressionistic painters in the early 19th century were coming to terms with Abstract artwork, many turned to music.

Paul Klee, František Kupka, Roy De Maistre are other notable examples of artists that have explored translation or transference; capturing aspects of "time, rhythm and form" in sculptural and visual arts, the terminology itself revealing more musical thinking, they recognised that the direct visualisation of music itself, when expressed graphically, to be aesthetically satisfying stimulating new patterns of personal expression.

Music also became the inspiration to underpin and inform temporal and structural progression for experimental film makers, necessitating the utilisation and development of emergent technologies to facilitate abstract communication; Oskar Fischinger, Len Lye, Norman McLaren being significant exponents of this emerging art form leading John and James Whitney to advance the language into the digital domain finding new audio-visual correspondences. Studies of synaesthesia, stemming from the work of Galton who coined the term in 1880, demonstrate clear potential for the development of greater understanding of imagination. As argued by Cytowic and Eagleman (2009), synaesthesia may even hold the key to a more fundamental understanding of creativity and insight. Simner, C. M. et. al. (2006), Schlewitt-Haynes, L. D. et. al. (2010), Dailey, A., et. al. (2010), Ramachandran and Hubbard (2001), Kadosh & Terhune (2011), Eagleman, D. M., et. al. (2006), and, most notably, Ward, J., et. al. (2008), all identify the creative significance of cross domain sensory experience and the potential for the bisociation of perceptual matrices to enrich experience and potentially stimulate creativity.

The Sound Canvas

As musicians and academics, it is a responsibility to provide learning, teaching and practice opportunities most capable of producing the most creative output. Given the predominant requirement for exclusively auditory output from musicians, and

visual output from ‘artists’, if there is any possibility of enrichment by challenging this exclusivity then it should be explored directly. As such, the practice-based research in this work is designed to explore the precept that cross-domain creative practice can be beneficial in terms of fluency and quality. Centering creative work on the parallel and integrated approach to visual, animated and sound art work, specific physical locations were adopted as places to meet, discuss, and, ultimately, to gather raw digital data in the form of location sound recordings, photographs, acoustic impulse responses, and videos.

The development of work, whilst designated as a collaborative process, was nevertheless open to transformation and adaptation throughout. Using only a relatively small amount of initial data-capture time, and discussion of creative directions and methodologies, a strong identity quickly became apparent in the work with many emerging commonalities and perspectives. The process of interpretation through collaboration was an insightful process. Whilst musicians are well practiced in forms of direct collaboration through training and professional experience, the integration of technology as a medium of communication and interaction in this project inaugurated distinctively new patterns of experience and exchange of ideas.

Whilst communal energy and impetus—even creative competition—would perhaps be anticipated, the use of a central database of creative work in sound, animation and image during all stages of development, created a concepts and ideas space in which interpretations and responses could not only be appreciated but also appropriated, integrated and distorted. Each selecting to work in parallel with sound, image and moving image, often explicitly using combined sound and image editing tools including sound-to-image, image-to-sound, and impulse response algorithms, distinct interpretations emerged during sporadic but prolific periods of development work.

Combining the use of sound recordings captured from the same source location in creative practice, the process of animating the ‘fixed’ image and rendering ‘still’ the time-based elements of sound are brought together. During the initial ‘opening out’—the process, using technology, of exploring every creative possibility and opportunity—a proliferation of ideas emerge, are then documented and shared. Interaction occurred both through sharing of ideas and through practical operation of cameras, sound recording equipment and projection systems.

A Toolkit for Musical Creativity

Application of the precepts of this research, in undergraduate learning and teaching have taken several different forms. Firstly, the use of visual stimulus in music composition tuition has been practiced in a more focused way. In one example, students in the first of two distinct three-year undergraduate music programmes

were, in different practical composition sessions, provided a specific creative brief. In the first session, students worked in an exclusively ‘musical’ way using only software interface as visual stimulus during a creative practice session. In a separate session students were instructed to compose music for, or in response to, selected videos. This test was completed with two different student groups; the first focused on the study of music production and the second studying more traditional music composition. Following both creative sessions students completed evaluations and submitted their work for assessment. When composing ‘for’ video, the vast majority of students reported; a) an increased fluency of compositional ideas; b) increased enjoyment of the creative process; c) increased perception of quality of ideas produced. The quality and quantity of creative ideas as evaluated by marking tutors aligned with the student perspective in almost every case.

Ultimately, there is considerable evidence that the introduction of visual stimulus can enrich and make more fluent the development of musical ideas. Whilst on the one level simply alleviating responsibility for development for structure and form, there is also evidence that the interaction with other perceptual domains provides opportunity for development of more and better ideas rather than simply the same more straightforwardly. Students of numerous disciplines fine themselves on spectra of discipline and creativity. Since the development of *music technology* as a defined discipline related to but distinct from *music*, there have emerged a plethora of educational courses, syllabi and qualifications frameworks that encompass everything from the technical focus on audio engineering through to more traditional composers and creative practitioners.

Summary and conclusions

Considering the work of De Bono (provocation and lateral thinking) and Csikszentmihalyi (creative flow), the introduction of what could be described as the ‘sensory opposite’ domain as a creative stimulus could provide the necessary agent for improved quantity and quality of ideas in undergraduate music study. Moreover, research indicates a clear possibility that creativity directed towards sound and visual media more generally could be significantly developed through more explicit interaction with corresponding domains. In an increasingly media-orientated cultural space in which learners are educated alongside, through, and professionally for environments progressively transformed by technology, it is perhaps no surprise that new generations of undergraduate students bring increasingly more complex creative techniques and perspectives to their studies. In the arts this is particularly significant given the integrated and immediate accessibility of creative tools for sound visual practice and more media orientated foundational experience.

With a focus on the pedagogic interpretation and implementation of research ideas, the consequence of interim findings is the development of a website in order

to promote and to facilitate interaction, exhibition and further research. Perceptual Research in Image, Sound and Music (PRISM: www.prism.gb.net) was launched in September 2012 to enable; a) the interaction of artistic practitioners; b) access to auditory and visual arts stimulus for creative practitioners; c) a forum for interaction and collaboration using social media. The aim in the coming year will be to encourage interaction between students of different subject disciplines and to incorporate techniques developed through the practice-based element of this work in undergraduate learning and teaching.

As is clearly evident in early childhood, creativity in multiple and combined forms and formats is commonplace in many cultures. The point at which people either paint, write stories, make music, dance, or do none of these things, tends to occur after childhood in most cultures. The reasons for this are numerous. Progressive specialisation or ultimate abandonment of creative arts practice has been driven most widely by socio-political factors including education systems, professional and socio-economic conditions. Technology is at the heart of dynamic changes in each of these spheres of which each of these changes provide significant context to appreciate a shifting dynamic in creative practice experience. The accessibility of mobile and wider computing technology has resulted in the proliferation of photographic, graphic design and music production experience. Interaction with creative arts practice has been extended geographically, socially and culturally. The implications of this for higher education are significant. Whilst universities will continue to adapt and refine course designation and provision, there may be a need to reconsider the classifications of creative arts practice more fundamentally. We're not creative for one of our senses; we need to be creative with all our senses.

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Authors' Brief bios

Chris is Senior Learning and Teaching Adviser for the Institute for Learning Enhancement and Innovation, and senior academic in the Faculty of Arts, Design & Technology of the University of Derby in the UK. A classically trained musician and practitioner in the technological arts with over seventeen years experience of

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Michael is Senior Lecturer in Music and Programme Leader for the BA (Hons) Popular Music with Music Technology degree in the Faculty of Arts, Design and Technology at the University of Derby, UK. He holds diploma's in both Art and Music, a BSc (Hons) degree in Software Engineering, Mathematics and Music, and Masters degree in Contemporary Composition which combine to fuel his interest in computer creativity. He is a principle researcher for CTRG (Creative Technologies Research Group) with over twenty five years of teaching experience in the FE and HE sector, and an active digital artist, virtual art practitioner, composer, musician and sound designer with international professional experience in media production. As well as maintaining his professional role, he is an active member of the ACA (American Creativity Association), is published and has presented his research in multimodal creativity internationally.

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