

## **Constraining and Enabling Creativity: The Theoretical Ideas Surrounding Creativity, Agency and Structure**

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Sternberg and Kaufman have written that 'constraints do not necessarily harm creative potential – indeed they are built into the construct of creativity itself' (2010, p. 481). This paper will take this assertion and apply it to what Anthony Giddens (1976) has labelled one of the central problems in social theory, that is, the relationship between agency, an individual's ability to make choice, and structure, those things seen to determine behaviour. This relationship has been explored extensively by sociologist Pierre Bourdieu (1977, 1990, 1993 and 1996) in regard to cultural production. It is implicitly carried in the systems model of creativity developed within psychology (Csikszentmihalyi 1988, 1990, 1997, 1999), as the author has argued in other papers (McIntyre 2008, 2008a, 2009, 2009a). This paper will explore this issue in relation to the notion of freedom, as depicted by the philosopher David Hume (1952), how this notion relates to the conditions of creativity as conventionally seen in Romantic accounts and how this construct is typified in other more rationally focused views of creativity. In doing this the paper will analyse, critique, and synthesize existing literature on creativity and cultural production, specifically that concerned with the theoretical ideas surrounding creativity, agency and structure.

### **INTRODUCTION**

If, as much of the research literature concerned with creativity appears to be indicating (for summaries see Zolberg 1990, Sternberg 1999, Negus and Pickering 2004, Pope 2005, Sawyer 2006, Alexander 2006, Hennessy and Amabile 2010, Kaufman and Sternberg 2010), we need to be investigating creativity as a multifaceted process that requires the confluence of a set of necessary but not sufficient factors in order for it to emerge, then we really do need to become less person centred in our research focus. In recognising the multiplicity of factors in operation we not only need to range more widely in a disciplinary sense but, in doing so, we also need to come to some understanding of the relationship between agency and structure. Agency, in this case is an individual actor's ability to make choice, and structures are those things that are seen to determine actions and behaviours. Sometimes these structures are seen as determinants that impinge or attempt to control a creative action and are seen to be constraining factors that impose breaks on that action. However, as Sternberg and

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Kaufman have written, 'constraints do not necessarily harm creative potential – indeed they are built into the construct of creativity itself' (2010, p. 481).

This paper will take Sternberg and Kaufman's assertion and apply it to what Anthony Giddens (1976) and others (Bourdieu 1993, 1996, Archer 2000) have labelled one of the central problems concerning social theory, that is, the relationship between agency, an individual's ability to make choice, and structure, those things seen to determine behaviour. Some of these structures can be identified in the cultural world creative individuals inhabit, the societal organisations they interact with, and certainly in an observation of the biological and psychological apparatus available to them. The relationship individual agents have with these various structures has also been explored extensively by sociologist Pierre Bourdieu (1977, 1990, 1993 and 1996) in regard to cultural production. I would suggest it is also implicitly carried in the systems model of creativity developed within psychology (Csikszentmihalyi 1988, 1990, 1997, 1999), as the author has argued elsewhere (McIntyre 2008, 2008a, 2009, 2009a), and has become evident from a number of studies carried out in the Australian context (Paton 2009 & 2011, Kerrigan 2011, Fulton 2011, Sandner 2010, Killen 2010, Coffee 2010 and Barrett 2006).

These studies help demonstrate, and provide evidence, that, as Beth Hennessy and Teresa Amabile (2010) advocate, in order for us to come to a full understanding of creativity we must, as researchers, become increasingly interdisciplinary. They assert, in their recent overview of research into creativity, that:

Research into the psychology of creativity has grown theoretically and methodologically sophisticated, and researchers have made important contributions from an ever-expanding variety of disciplines. But this expansion has not come without a price. Investigators in one subfield often seem unaware of advances in another. Deeper understanding requires more interdisciplinary research, based on a systems view of creativity that recognizes a variety of interrelated forces operating at multiple levels (2010, p. 569).

Furthermore, that required interdisciplinarity identified by Hennessy and Amabile must operate not just within but across disciplines. To take this broader approach is not to betray the project of psychology, as Mihaly Csikszentmihalyi (1988) argues, but adds to the richness of information and understanding available to those serious about discovering what actually constitutes the phenomenon of creativity. In doing this there is a 'need to abandon the Ptolemaic view in which the person is at the center of everything, for a more Copernican model in which the person is part of a system of mutual influences and information' (Csikszentmihalyi 1988, p. 336). Csikszentmihalyi suggests that:

Perhaps even more than new research, what we need now is an effort to synthesize the various approaches of the past into an integrated theory. Of course, all this poaching in neighboring territory places an added burden of scholarship on the psychologist. The systems approach demands that we become versed in the skills of more than one discipline. The returns in knowledge, however, are well worth the effort (1988, p. 338).

### AGENCY AND STRUCTURE

To begin, one can claim that creative individuals may be both circumvented in their action and, at the same time, provided with the possibilities of that action by the structural factors they encounter and use while being creative. This declaration accords with Sternberg and Kaufman's assertion cited earlier in proposing that the limits placed on an individual by what have been called constraints, or to follow the alliterative process familiar to many, the 'p' of pressures placed on them by society, are also, at one and the same time, constitutive of the actions that individual takes.

This question has become the focus of a number of significant and lengthy research careers. Anthony Giddens (1984), for one, has argued that the attempt to devise a consistent account of human agency and structure requires a flight from the dualism of subjectivism and objectivism. He argues that agents can both be subject to and have control over structures and warns against falling into one camp or the other in an effort to redress whatever imbalances between agency and structure are perceived. Both need to be observed in conjunction with each other so much so that there is in evidence what he calls a 'duality of structure'. He argues that 'the constitution of agents and structures are not two independently given sets of phenomena, a dualism, but represent a duality' (1984, p. 25).

There have been critiques of Giddens' understanding of the relationship between agency and structure by those pursuing essentially the same goal, most notably Margaret Archer (2000). However, despite her concerns, she also warns against concentrating on agency at the expense of structure, or vice versa, instead asserting that 'if structure stands for objectivity and agency for subjectivity, the two are found to be inextricably intertwined (though not analytically inseparable)' (Archer 2000, 313). She vigorously asserts that 'part of our subjective human story is itself shaped and constrained by the causal powers of objective reality' but just as 'social reality enters objectively into our making' (2000, p. 315) it can also be readily seen that 'one of the greatest human powers is that we can subjectively conceive of re-making society and ourselves' (ibid). The danger, of course, is to continue to see the subjective experience of agency in opposition to the supposed impositions of objective structural reality. For Archer, 'the story to tell is about the confluence of causal powers – those of external reality, and our own which emerge from our relations with it' (2000, p. 315). Giddens, however, goes on to say that structures are not external to individuals (1984, p. 25) but are part and parcel of what constitutes that individual while that individual agent is capable of reflexively monitoring the structures that inhabit it.

Similarly Scott Kelso and David Engstrom reject 'the mutually exclusive either/or interpretations of complementary pairs in which one complementary aspect is valorised, reified, and finally deemed more fundamental than the other' (2006, p. 53). They contemplate the emergence of self directed human activity and the dynamic coordination of that activity by proposing a theory of 'directed self organisation in which both spontaneous pattern formation and agency co-exist and complement each other' (2006, p. 106) seeing them as inseparable from each other.

Sociologist Pierre Bourdieu also attempted to take up the challenge the relationship between agency and structure posed for those engaged in trying to understand the practices of cultural production.

### CULTURAL PRODUCTION

Pierre Bourdieu's theory of practice constituted 'a probing reflection on one of the oldest problems in the Western intellectual tradition, namely, the relationship between the individual and society' (Swartz 1997, p. 96). From the beginnings of his ethnographic studies in Algeria through to his later work Bourdieu stated that 'all of my thinking started from this point: how can behaviour be regulated without being the product of obedience to rules?' (Bourdieu quoted in Swartz 1997, p. 95). Randall Johnson, one of his editors, argues that:

Bourdieu sought to develop a concept of agent free from the voluntarism and idealism of subjectivist accounts and a concept of social space free from the deterministic and mechanistic causality inherent in many objectivist approaches (Johnson in Bourdieu 1993, p. 4).

Bourdieu saw that subjectivism (agency) and objectivism (structure) instead of being diametrically opposed were, as Kelso and Engstrom later suggested, linked. Reading across both approaches at once, Bourdieu insisted that:

practice is always informed by a sense of agency (the ability to understand and control our own actions), but that the possibilities of agency must be understood in terms of cultural trajectories, literacies and dispositions (Schirato & Yell 1996, p. 148).

From this perspective creative practice, of the type that results in cultural production, is made possible by the interplay between agency and structure, Bourdieu argued that, for him, the mechanism that links these two is the concept of *habitus*. It is:

a 'feel for the game', a 'practical sense' (*sens pratique*) that inclines agents to act and react in specific situations in a manner that is not always calculated and that is not simply a question of conscious obedience to rules. Rather it is a set of dispositions which generates practices and perceptions. The *habitus* is the result of a long process of inculcation, beginning in early childhood, which becomes a 'second sense' or a second nature (Johnson in Bourdieu 1993, p. 5).

Using this 'feel' for the way things operate, individual agents tend toward certain action in preference to others. However, they 'do not act in a vacuum' (Johnson in Bourdieu 1993, p. 6). They do so in what Bourdieu labels fields. A field is thus a dynamic space where struggles for dominance occur and 'a change in agent's positions necessarily entails a change in the field's structure' (Johnson in Bourdieu 1993, p. 6). Not only are fields arenas of contestation but they are also structured spaces that are constituted by certain types of capital. These are, Bourdieu asserts:

Economic capital, which is immediately and directly convertible into money and may be institutionalised in the form of property rights; ...cultural capital, which is convertible, on certain conditions, into economic capital and may be institutionalised in the form of educational qualifications; and...social capital, made up of social obligations (connections), which is convertible, in certain conditions, into economic capital and may be institutionalised in the form of title nobility (Bourdieu, 1986, 243).

In addition symbolic capital, seen in the prestige associated with awards and distinctions, is also important. These types of necessary capital are in essence constituted by forms of knowledge, that is, a set of internalised codes or 'a cognitive acquisition which equips the social agent with empathy towards, appreciation for or competence in' (Johnson in Bourdieu 1993, p. 7) producing cultural artefacts. As Johnson suggests:

To enter a field (the philosophical field, the scientific field, etc.), to play the game, one must possess the habitus which predisposes one to enter that field, that game, and not another. One must also possess at least the minimum amount of knowledge, or skill, or 'talent' to be accepted as a legitimate player. Entering the game, furthermore, means attempting to use that knowledge, or skill, or 'talent' in the most advantageous way possible (in Bourdieu 1993, p. 8).

Bourdieu also insists that the possibilities of action are produced in a field of works. This field of works is the accumulated creative work accomplished up to this point in a particular field. For Bourdieu it is a 'system of schemata of thought' (1996, p. 236) but it includes techniques and codes of production (Toynbee 2000) which 'presents itself to each agent as a space of possibles, that is, as an ensemble of probable *constraints* which are the condition and the counterpart of a set of *possible uses*' [italicised in original] (Bourdieu 1996, p. 235).

Given all of the above it can be suggested that it is the interplay between an individual agent's habitus, the deployment of various forms of capital in the structured field they engage with, and the accumulated and structured knowledge that exists in the field of works, that makes creative practice possible.

### CREATIVITY AS CONFLUENCE

Psychologist Mihaly Csikszentmihalyi has also proposed a structured milieu that provides the ground for creative action but he does so from a different disciplinary perspective from Bourdieu; one that has a differing set of intellectual antecedents with differing sets of concerns. Nonetheless, it can be argued that he is also pushing toward a similarly multifaceted answer to how individuals make creative decisions within complex conjunctions of structured social spaces and accumulated cultural knowledge.

In an implicit way Csikszentmihalyi explores how behaviour, in this case creative behaviour, can be regulated without being the product of obedience to rules. He doesn't explicitly devolve singular accountability for creativity to the individual agent but he also doesn't, conversely, suggest that creativity is located solely within the determinations presented by the societies and cultures they inhabit. Instead he argues that creativity results from the operation of an interactive system that is constituted from three main components; a person, a field and a domain that operate together in a nonlinear way. Without overly emphasising the separate elements in the creative process Csikszentmihalyi sets out a view of creativity that incorporates all of these elements within an interactive system which can be studied by investigating instances within it. The person, field and domain 'affects the others and is affected by them in turn' (Csikszentmihalyi 1988, p. 329) and the three components 'represent three "moments" of the same creative process' (ibid).

Csikszentmihalyi asserts that the information the creative person draws on 'existed long before the creative person arrived on the scene. It had been stored in the symbol system of the culture, in the customary practices, the languages the specific notation of the "domain"' (Csikszentmihalyi 1988, pp. 325-339). In a manner similar to that of Bourdieu's presentation of the idea of the field of works, Csikszentmihalyi contends that the domain is constituted by the conventions, rules and ideas the person has access to. He argues that the person must immerse themselves in the domain in order to acquire at least the minimal understanding of any given domain and be able to operate within it. In fact, as Csikszentmihalyi explains:

it does no good to be extremely intelligent and curious if I cannot learn what it takes to operate in a given symbol system. The ownership of what sociologist Pierre Bourdieu calls "cultural capital" is a great resource (1997, p. 53)

With an understanding of the domain as a part of their repertoire of knowledge it is the person's role in the creative system to produce variation in the inherited information pertinent to that domain. That person, which we can for argument's sake equate to a creative agent, brings an idiosyncratic yet very much shared array of personality structures, biological attributes and sociocultural factors, such as level of education, sibling position, gender and class characteristics, to their work in creating change within the domain. Indeed they may be pre-disposed by these biological and environmental factors to make particular variations and then, if the novelty the person introduces is seen as appropriate, the variation may then be considered creative. These decisions are reserved for the field, which 'is necessary to determine whether the innovation is worth making a fuss about' (Csikszentmihalyi 1997, p. 41). The complexity of the system is highlighted by the fact that the person, having acquired the necessary domain knowledge, is also a constituent component of the social organisation that is the field. Then, to add further to this complexity it can be seen that:

there is no way, even in principle, to separate the reaction of society from the person's contribution: The two are inseparable. As long as the idea or product has not been validated, we might have originality, but not creativity (Csikszentmihalyi 1999, p. 321).

Accepting that social validation is a critical part of a creative act we can then see that the simplest way of defining a field 'is to say that it includes all those who can affect the structure of a domain' (Csikszentmihalyi 1988, p. 330). The use of the term 'field' here certainly has a degree of similarity to Howard Becker's use of the term 'art world' but for our purposes it can be most readily equated with the same term, field, used by Pierre Bourdieu. In Csikszentmihalyi's terms, fields are complex phenomena since 'every field is embedded in a specific social system' (1988, p. 331) and can be analysed at a number of levels. For example, looking at electronics as a field, at one level:

The entire market for electronics becomes the field that evaluates the organization's products once these have been implemented within the organization. Thus, at one level of analysis the system comprises the organization, with innovators, managers, and production engineers as its parts; but at a higher level of analysis the organization becomes just one

element of a broader system that includes the entire industry (1999, p. 327).

It is at this point in this explication that one important question arises. How is it possible given the number of constraints identified in this system for a creative individual to have free will; how can they make creative decisions without them being forced upon them by the components of this interactive system? Without an answer to this question it is difficult to overcome the tensions that exist between the agency of the individual and the power of the structures they operate within.

### FREE WILL AND ROMANTICISM

A Romantic view of creativity is very much hinged on the notion of free will. As the author discusses in his forthcoming book *Creativity and Cultural Production: Issues for Media Practice* (2012) the German philosopher Immanuel Kant insisted that the locus of creativity for artists could be found internally, in:

a unique and spontaneous act that introduces a leap in ordinary natural processes... the creator gives the rule to his work; he generates his style and the significance of the product in accordance with his freely functioning imagination. [Furthermore] creation of art is not only independent of prior procedures or rules, but it is independent of all conditions other than spontaneous activity made possible through faculties in the creator's consciousness (Rothenberg & Housman 1976, p. 29).

This idea of free willed, self-determined, self expression caught the commonsense imagination and has been difficult to dislodge. As Peter Watson argues the West is still living with the results of this perception of both freedom and its relationship to creativity. He asserts that 'the rival ways of looking at the world – the cool, detached light of disinterested scientific reason, and the red-blooded, passionate creations of the artist – constitute the modern incoherence' (2005, p. 610). However, if we take the view that freedom as a concept does not have to mean in a simplistic sense the absence of constraint but instead is seen as the ability to make choice a way out of this incoherence may be possible. As David Hume (1898 and 1952) has posited, freedom may in fact be less about the absence of constraint and more about working within it. He suggested in his *A Treatise of Human Nature* (1898) that:

After we have perform'd any action; tho' we confess we were influenc'd by particular views and motives; tis difficult for us to persuade ourselves we were govern'd by necessity, and that 'twas utterly impossible for us to have acted otherwise; the idea of necessity seeming to imply something of force, and violence, and constraint (1898, p. 188).

Hume declares that 'we feel that our actions are subject to our will on most occasions, and imagine we feel that the will itself is subject to nothing' (1898, p. 189) but then goes on to say 'we can never free ourselves from the bonds of necessity. We may imagine we feel a liberty within ourselves' (ibid) but this view is a problematic one. Choice, which may instead be the hallmark of liberty rather than the absence of constraint, does not sit in opposition to structural dispositions but is entwined with them. As Pierre Bourdieu has bluntly asserted we 'need to be reminded that in these matters absolute freedom, exalted by the defenders of creative spontaneity, belongs

only to the naïve and the ignorant' (1996, p. 235). Freedom is, instead, related to the structures that are bound together with choice making action. In this regard Janet Wolff argues that all actions of cultural producers are affected and circumscribed by the structures they engage with:

It does not follow from this that in order to be free agents we somehow have to liberate ourselves from social structures and act outside them. On the contrary, the existence of these structures and institutions enables any activity on our part, and this applies equally to acts of conformity and acts of rebellion ... all action, including creative or innovative action, arises in the complex conjunction of numerous determinants and conditions. Any concept of 'creativity' which denies this is metaphysical, and cannot be sustained (1981, p. 9).

### RESEARCH IN THE AUSTRALIAN CONTEXT

A number of recent studies that have taken place in the Australian context have confirmed many of these ideas. For example, Elizabeth Paton, working ethnographically with Australian fiction writers, has explored the systems model of creativity as it applies to the publishing industry in this country. In undertaking this research she interviewed 40 Australian fiction writers as well as a number of publishing industry professionals. The participants were chosen for their overall profile in the industry and the writers represented a broad range of genres. These genres included literary fiction, science fiction, fantasy, horror, crime, as well as romance and children's and young adult genre writers. In total they had written more than 400 titles between them. The publishing industry professionals were drawn from small and large publishing companies, agencies and writers organisations and represented in part the field of fiction writing in Australia. She supplemented her primary focal theory, that is, the systems model of creativity as developed by Mihaly Csikszentmihalyi, with Bourdieu's ideas on the field, habitus and fields of works, in order to analyse how the whole system of creativity operated. She discovered, amongst other things, that the field, seen here as an arena of social contestation, was significant in the creativity of fiction writing:

At each stage individual actors other than the writer are making decisions that can affect the content style and design and reception of the work as well as the publication of future work and the writer's career. So, as such publication and communication represent a network of relationships that an individual writer must negotiate before they can be considered creative. In order to understand creativity in fiction writing then it's necessary not only to investigate the individual writer and the knowledge and body of works that they draw on but also how this social system operates making judgments on and shaping that knowledge (Paton 2011a, online).

Not only did she identify the limitations imposed on Australian fiction writers but she also saw the potential it afforded them. She additionally isolated elements of the domain and identified the operation of its influence on the fiction writers she observed and interviewed:



That the writers' early engagement with the domain of writing and its symbol systems, as well as their social or familial contexts were influential in developing their interest in becoming writers themselves conforms with Bourdieu's (1977, 1993) concept of *habitus*. The *habitus* is the unique but also shared social and cultural trajectories that predispose a number of individuals to engage with the domain or "game" of writing, "to take an *interest* in the game, to be taken up, taken in by the game" (Bourdieu, 1993, p. 18). As with the development of an individual's *habitus*, however, it is not enough to be exposed to and interested in the domain of Australian fiction writing to be able to function as a writer of either literary or genre works. The content, rules, and procedures of the domain must also be acquired and internalized (Paton 2011, 106).

In essence Paton's research confirms that 'during the creation of a written text, individual writers are interacting in complex ways with a number of different social and cultural factors' (2011, p. 112). Most importantly her research has revealed that:

The social and cultural context in which writers work both constrain and enable them, providing ideas, skills and knowledge as well as boundaries for what is possible or acceptable. Although they may make choices and act in ways that alter or extend these structures, individuals can never entirely break free of them (2009, p. 17).

Similarly, Judith Sandner's research asked how creativity, communication and cultural production could be fostered within specific social and cultural contexts? She focused particularly on the aftermath of the Newcastle earthquake in 1989 in Australia which led to 'the purposeful production of related cultural texts' (2010, p. 1). As one example, the play *Aftershocks*, which was initially conceived as a community arts venture in reaction to the earthquake, was then 're-appropriated and became the chronicle foundation for the 1998 film *Aftershocks*' (ibid). As Sandner's research reveals 'both texts maintain communicative currency as performance or pedagogic resources that continue to perpetuate perceptions of the city' (ibid). In particular Sandner examined the production activities involved in the making of the play *Aftershocks* using Pierre Bourdieu's concept of *habitus* 'to explain how meanings pertaining to the city's culture have been generated through innovative creative practices' (2010, p. 1).

By utilising a combination of intertextual analysis and interviewee data, and viewing these through the lens of Bourdieu's theory of *habitus*, Sandner's research revealed an application of what has been called production praxis. It reveals some of the 'localised political motivations' (Sandner 2010, p. 11) for the production of stories that used the Newcastle earthquake experience, it gives a useful insight into 'how working-class and socialist ideals may be embedded in creative activities designed to circumvent traditional power relationships' (2010, p. 12), and it considered the intent of the production team, explaining 'why the scriptwriter was chosen, how the storytelling information was gathered, and why the processes dictating the shape the text took as a performative genre developed' (ibid). Not only does this information reveal something about the intentions and actions of the field, the arena of social contestation Bourdieu describes as a necessary component of cultural production, but the action of the domain was present in the 'important role

that vernacular language' played in 'the actual play dialogue'(ibid) though not explicitly expressed in these terms. Since Bourdieu's work was central to this research it can be claimed that Sandner's research was also an attempt to explore and reveal aspects of the marriage of agency and structure through the specific cases presented by the Newcastle earthquake experience.

Janet Fulton, on the other hand, worked ethnographically investigating the creative processes used by print journalists in Australia. Fulton conducted a set of semi-structured interviews, undertook participant observation, and analysed documents and artefacts pertinent to print journalism. The interviews were conducted with journalists (senior through to cadets) as well as editors from Australian newspapers and magazines. The interviewees were questioned about their background, 'knowledge of the journalistic domain, how they write an article, how members of the field affect their work processes and how they work within the rules and procedures of the domain' (Fulton 2011a, p.4). The focal theory that guided her research was centred firmly on the systems model of creativity. Her work therefore didn't use the notion of creativity in:

the traditional Romantic sense where a lone genius produces Art via a Muse and creates without structures or constraints, but draws on a Rationalist approach that argues an individual is one part of a dynamic system of social, cultural and individual structures and uses these structures in the production of their work (Fulton 2011, p. 2).

Her investigation of the domain of journalism identified as set of constraints linked to the 'importance of learning the traditions and conventions, or rules, of the domain' (2011a, p. 11). These included: the style of publication, that is, whether a print journalist wrote for a broadsheet or tabloid with their own distinctive news formats, rules and work practices; the conventions of newswriting; the form of the story, that is, whether it is based on an inverted triangle approach in hard news or not; the basic questions used by most journalists such as who, what, why, when, where and how; the application of news values; and, of course, the publication's style guide (Fulton 2011a, p. 11). In terms of the field, which for print journalists included, but was not limited to, subeditors, editors, news editors and chiefs of staff, Fulton wrote that:

Analysis of the data collected has demonstrated that a journalist's interaction with the field is a vital component for a creative outcome. A journalist, as the individual in the systems model, learns the preferences of the field but is also supported by the structures of the field and this enables the production of creative texts (Fulton 2011, pp. 10-11).

She concluded, in part, that the constraints that exist for print journalists, 'can limit a journalist's agency and not every article produced will be considered a creative product. However, it is possible for a journalist of *any* genre to utilise these exact same structures as enabling factors' (2011a, p. 12, emphasis in original). She goes on to contend the 'tacit knowledge a journalist has allows them to "do without thinking"'(ibid) and cites Manning at this point who asserts that:

This is where human agency meets social structure. To adapt a phrase, journalists may make their own news but they do not make it just as they please under conditions chosen by themselves but under circum-

stances directly encountered, given and determined by the rhythm of the news organization (2001, p. 54) (quoted in Fulton 2011a, p. 12).

Other writers face similar situations. For example, Chloe Killen has recently published research on the writers of Australian children's literature which also confirmed the veracity of the systems model of creativity. Killen argues that a confluence approach to creativity is appropriate as it 'acknowledges the importance of not just the individual, but their social and cultural contexts as well' (2011, p. 5). Using this idea as a basis Killen, as part of her research, undertook a case study of five contemporary Australian authors:

The five authors in this case study were selected from the Children's Book Council of Australia's (CBCA) Picture Book of the Year Award list as a representation of the population of Australian children's picture book authors. The study was limited to those authors who have either won, been honoured or shortlisted on the CBCA award list since 1990. In-depth semistructured interviews were conducted with each participant and analysed in conjunction with and supported by secondary sources of data such as previously published articles about the authors, the material they produced and observation at literary festivals (Killen 2011, p. 8).

In these case studies Killen looked at the necessary set of elements that shape the framework for creativity (2011, p. 9). For Csikszentmihalyi, as Killen asserts, these are the frameworks of the domain, the field and the individual and in her analysis she combines these with Bourdieu's conceptual elements, that is, 'cultural capital, the field, and the field of works as equally important and necessary to produce cultural products' (2011, p. 10).

Combining these two approaches we can understand how authors of Australian children's picture books engage in a systematic approach to creativity. Through the acquisition of and engagement with a domain of knowledge, and interaction with a larger social structure or field, individual authors are able to negotiate their agency to produce novelty (Killen 2011, p. 10).

Sarah Coffee took a different methodological approach. Coffee used a practitioner based research approach (McIntyre 2006) and consisted of Coffee operating as a freelance journalist where she immersed herself in the creative process. What occurred during this creative project was a multilayered approach to understanding, rather than explaining, creativity. Coffee wrote four profiles similar to those published in Australian weekend newspaper supplements. As well as engaging in the creative act of writing she also focused for her content on four prominent creative practitioners from the fields of music, art, journalism, and science. She suggests that:

I selected these professions as they represent areas traditionally associated with creativity (music, art) and two that are not (science, journalism). Also, these particular categories already have a grounding in existing literature on creativity. The particular individuals interviewed were sculptor Mikala Dwyer (art), Wally 'Gotye' De Backer (music), former ABC Four Corners journalist Chris Masters (journalism) and population health researcher Dr Paul Bolton (science). These profiles formed the basis of my research as I examined creativity through both

the process of freelance journalism and the product of this activity. By comparing my own experience of the creative process with that of the four creative practitioners documented in the profiles and through the application of previous research to these findings, this research was informed by a multidimensional approach to the study of creativity and cultural production (Coffee 2011, pp. 2-3).

As she explains 'during the process of writing the profiles I discovered manifest similarities between my experience and that of the creative practitioners I was writing about' (2011, p. 12). These cultural producers, all of whom were from a diversity of creative professions, 'exhibited corresponding experiences of interaction with the domain and the field' (ibid) of creativity, as predicted by Csikszentmihalyi in his development of the systems model of creativity. As she argues during her analysis:

The structures and limitations that surrounded their work enabled rather than constrained their creative practice and their collective experience of creativity was that of a process that could be committed to, learnt, practiced and improved. The similarities that have emerged from this comparison and the application of existing theories demonstrate the knowable nature of creativity and work towards validating systemic interrelationships as the foundations in which the creative process originates and evolves (2011, pp. 12-13).

A practitioner based enquiry (PBE) approach to an exploration of her own creative practice was also undertaken by Susan Kerrigan. Her paper, 'Creative Practice Research: Interrogating Creativity Theories through Documentary Practice' (2010) outlines the basic video documentary project undertaken. In the paper she states that 'this practice-led research was undertaken during the production of two cross platform oral history documentaries on Fort Scratchley, NSW' (2010, p. 2). The first resulted in a DVD of this historic location and the second was an online documentary, *Fort Scratchley: A Living History*, which displays a multifaceted audio-visual timeline of the Fort's history and is accessible online ([www.fortscratchley.org](http://www.fortscratchley.org)). Apart from making these complex cultural products, with a relatively low budget and minimal crew, Kerrigan kept a journal of her daily creative activities as the director on this project, as insisted on by Murray and Lawrence (2000) in their treatise on this methodological approach. This creative journal provided significant data for analysis, as did the artifacts themselves, and, apart from her concentration on interrogating the basic confluence approach of the systems model of creativity 'to extrapolate the social and cultural interactive and embodied aspects of an agent's creative documentary process' (2010, p. 12), Kerrigan also found it 'necessary to incorporate other theories of practice, for example habitus and flow, in order to more accurately analyze the data that was examined' (ibid). She looked at this creative project and her part in it using multiple lenses including as a staged process, as a collaborative project and placed these against the systems model of creativity. In doing this she found that:

the application of these additional theories about creativity could also more effectively illuminate the relationship between agency and structure in order to improve understandings of creativity, creative practice and creative process (Kerrigan 2010, p. 12).

In presenting these findings she suggested that:

it should then become possible to realign the practice of documentary film-makers, working within collaborative production contexts, with the current research based understandings of creativity as outlined above. In doing this, it should also be recognized that documentary film-makers practice is simultaneously enabled and constrained by the documentary production and distribution contexts they work in (Kerrigan & McIntyre 2010, p. 126).

Kerrigan's contribution to self-reflective research studies into creative practice indicates that:

a creative research approach that investigates acts and contexts of creation, as well as exposing tacit and explicit demonstrations of skills, knowledge and methods of documentary practice could help researchers to tease out the creative forces that are at work for documentary practitioners (ibid).

Michael Meany has also based his work on the idea that creativity is systemic and also engaged in creative activity as a research process. In one of his earlier studies (2007) Meany investigated the interaction of creative choices made by a poet (Richard Tipping) and Meany himself as a designer of the poet's website. However, instead of taking human agents as his sole subject for his research Meany then undertook a creative project that allowed him to investigate the interaction between a scriptwriter and two computers that generated comedic output, one computer acting as a 'comedian' and the other a 'straight man'. Meany wanted to examine the creative process as it applies in the new media environment which, for him, operates 'at the confluence of human and nonhuman agency' (Meany and Clark 2011, p. 225). In this project Meany acted as the scriptwriter both in terms of crafting dialogue for the characters and 'as a developer of computer script to guide the interactions of the conversational agents' (ibid). According to Meany, the interaction of the conversational agents, the computers, was a result of his own creative practice that allowed 'for the emergence of improvised responses based on scripted dialogue' (ibid).

The Alicebot 'brain' and the structured and procedural methods of the AIML 'mind' allow the computer scriptwriter to develop dialogue that can be hard-coded and fixed as well as recursive and random. Using traditional structures of humour, within the constraints of the chatbot, the theatrical scriptwriter can develop comic dialogue (Meany and Clark 2011, p. 234).

As the scriptwriter Meany recognized that he was 'embedded within structures that both constrain and enable' his actions (Meany and Clark 2011, p. 225). He also stressed, in recognition of Keith Sawyer's earlier study of improvisational theatre, that the 'improvised' interaction in his own case was produced, in part, by non-human elements. However, Meany argues that:

it is true that the non-human elements are 'simple units' devoid of the human attributes of 'complex, creative units' (Sawyer 1999, p.458). However, the integration of the agency of the human scriptwriter mitigates, to a degree, this lack. The lack of intention on the part of the non-human agents (a desirable feature in improvised performances) does suggest that the activity of the system cannot be reduced to simple

descriptions of descriptions of the agents. Their interactions; the multiple roles of the scriptwriter, the flexible nature of the chatbot's use of natural language, and interaction with an audience may be sufficient to create an illusion of emergence (Meany and Clark 2011, p. 233).

What is significant about this research is that it points directly to the philosophical problem of freedom in relation to human agents. Also looking at emergent properties that spring from an active engagement with the world Margaret Barrett took a more traditional methodological approach. Barrett conducted a longitudinal ethnographic study of children aged four to six years in two schools in Tasmania and looked at their early music making as composers, song makers and notators, over a period of two years. She notes that:

In the first year, musical, notational, verbal and observational data were generated during weekly visits to two kindergartens (enrolments of 20 children, total 40). In year 2 these children were followed into their first year of formal school (preparatory grade) and data were generated in fortnightly visits to each site... (2006, p. 207).

In addition Barrett collected video footage and made transcriptions of children's musical processes and products as composers and song makers. The transcriptions included those made by the researcher as well as the children's own notations of their own and others compositions and songs. As she explains:

The generation and analysis of observational and verbal data in conjunction with musical and notational data have provided rich insight into children's musical thought and activity as composers, song makers, and notators (2006, p. 209).

In her analysis Barrett applies the system model of creativity and insists that the culture children produce, as evidenced by the songs they compose, is an emergent property springing from 'their active engagement with their worlds' (2006, p., 205). She suggests that children, 'are active agents who internalize the structures of adult worlds, and reproduce these in novel, context-dependent ways (Corsaro, 2000) rather than passive consumers of adult-generated culture' (Barrett 2006, p. 205). As she further explains, 'in this view, creativity emerges from the interaction between individual, domain and field' (ibid).

Also seeing creativity as interactive and multifactorial, as well as taking an ethnographic approach, the author, Phillip McIntyre, investigated songwriting too. But rather than studying the formative processes of children he looked, instead, at contemporary western popular music songwriters operating in their professional milieu. As he explains in his article for the *Creativity Research Journal* (2008) outlining this particular research project, his methodological approach occurred over a ten year time frame and involved participant observation, in-depth interviews and artefact analysis, as well as the conduct of a short survey. In total McIntyre conducted 83 in-depth interviews. 71 of these were conducted with working songwriters and 12 interviews were conducted with various popular music industry functionaries. The respondents were mainly of Euro-Australian origin, 13% were women and 87% were men. This primary source material was coupled with secondary interview material from significant American, British, and Australian songwriters. The participant observation was made possible by the authors continued involvement as a participant

in the Australian music industry during the period of the research. In a process of triangulation, the prior data collection methods were supplemented with an observation and analysis of pertinent documents and artefacts. These included:

recordings of lengthy press conferences with songwriters; the examination of songwriters' own workbooks, tour booklets, and itineraries; demonstration CDs supplied by publishers; minutes of meetings; e-mail correspondence; teaching materials; pamphlets from relevant organizations; videotaped footage of recording sessions; and other pertinent artifacts and documents. These documents and artifacts were treated as bearers of clues to then make inferences from (McIntyre 2008, p. 46).

The data collected was then analysed in relation to the systems model of creativity. While this analysis concluded similar results to those discussed above in relation to the domain and field McIntyre observed, in relation to the person, that one can't discount either genetics or personality as necessary but not sufficient factors in creative activity. The results of his research, instead, 'indicate that certain predispositions may, in part, provide the grounds against which creativity may occur' (McIntyre 2008, p. 46). The process of enculturating and socializing musicians into the occupation of musician could provide 'a predictive set of general behaviors' (ibid) and coupled with the accumulation of a songwriter's habitus, they act as a 'set of predispositions to act rather than necessarily determining the action of the musician in writing songs' (ibid). When these songwriters produce a variant in the symbol system that is the domain they make decisions and choices. McIntyre asserts that 'the limitations on autonomous decision making are, however, set by the field and domain, acting as both a set of constraints and enabling factors making creative choice possible' (McIntyre 2008, p. 49). He concludes by asserting that:

The interdependence of the domain, field, and person involved in the cultural production of contemporary Western popular music, as seen by the exposure and elucidation of the creative systems model applied to contemporary Western popular music songwriting in this research, allows the conclusion, at the more philosophical level, that the ideas outlined above can also be presented as an account of the interdependence of agency and structure. Rather than these two concepts being seen as mutually exclusive or irreconcilable with each other, there exists a mutual dependence between them that serves to make the actuality of both agency and structure possible (McIntyre 2008, pp. 49-50).

## CONCLUSION

Given the above it appears easy to agree with Sternberg and Kaufman's declaration that 'constraints do not necessarily harm creative potential – indeed they are built into the construct of creativity itself' (2010, p. 481). We may need to add one caveat though. In using the word 'constraint' we risk falling into the implication that structures are necessarily instances of negative repression, a force that weighs on creativity but does little to enhance it. We could equally substitute the word 'enabler' every time we use the word constraint but that would imply the opposite set of conditions, that these structures are only ever positive forces. It seems to be the fate of

those involved with linear language to be trapped inside the constant use of binary oppositions. I, however, would agree with Nils Bohr when he adopted the motto *contraria sunt complementa* for his coat of arms – opposites are complementary.

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