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# **Anti-Creativity, Ambiguity and the Imposition of Order**

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### **Abstract**

Though there are many ways of describing markers of creativity, one of the most persuasive was one of the earliest we encountered: the ability to tolerate ambiguity. It is precisely that ambiguity, valued in the arts for its richness of interpretive possibility, that is perhaps most at risk in the current sector and institutional climate of imposed order. An insistence on a rigidly enforced language of learning outcomes seems to value tidiness and clarity over the excitement and engagement of open-ended exploration. An emerging pedagogical correctness (focusing on easily assessable and quantifiable outcomes) threatens invention and critical questioning as not only an aim for students but also for teachers as part of the task of developing engagement with the culture of a specific discipline.

This paper will, first, explore the idea of tolerance of ambiguity through the history of its critical discussion and relation to notions of metaphor and imagination. It will then look at the history and experience of participants in one specific group exercise designed to address issues of ambiguity, categorization and organisation. This exercise, drawing on the recognition of and imaginative connection between properties of natural objects, has been used widely in a range of educational and developmental settings with sometimes startling and certainly memorable results. It may not always, however, be seen as conforming to current demands for rigid clarity of intentions and learning outcomes, and can raise issues of

the legitimacy of questioning, surprise and hidden agendas as pedagogical strategies and prompts to imaginative leaps.

Finally, it will contextualise this discussion by looking in a broader way at the tone of imposed order in pedagogical literature, its application in e-learning methodology, and the ways that it may tend to discourage rather than reinforce cultures of creativity in teaching practice.

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## **Anti-Creativity, Ambiguity and the Imposition of Order**

### **I. Tolerance of Ambiguity**

Much of the psychological literature on creativity, whether in formal academic research papers or popular handbooks, sets out markers to identify this mysterious and desirable quality. These lists vary, but a typical one might include such qualities as: originality, curiosity, playfulness, capacity for fantasy, divergent thinking, risk-taking, intuitive, emotional, openness to new experience. In the 50's, Guilford identified three factors based on his analyses of 'thinking interests: divergent thinking (a search that uncovers several answers), convergent thinking (thinking through to one correct answer, and one that has tended to appear in most subsequent lists, a willingness to accept uncertainty and avoidance of rigidity or: 'tolerance of ambiguity'(Guilford 1950). Some lists separate into categories of cognitive styles, conative variables, and personality traits; 'tolerance for ambiguity' is usually included in the latter grouping. Torrance's early tests for identifying creativity included this, as did many subsequent lists. (Torrance 1974). Sometimes even its absence is noteworthy. In a recent collection of creativity studies in international settings, it is the one of two main markers noted by a Korean study as 'missing' in the population of their test groups. (Kaufman&Steinberg 2006)

Tolerance of ambiguity is one of Sternberg and Lubart's 'five attributes', one of Davis's 'sixteen traits', and though not explicitly mentioned as one of Root-Bernstein's 'thirteen tools', is crucial to their stress on the role of imaginative metaphorical and analogical thinking as a key factor in creative thinking. (Sternberg&Lubart 1995; Davis 1975; Root-Bernstein 1999) In another context, and much earlier, as Martindale pointed out, poet Samuel Taylor Coleridge had already noted that 'creativity required the ability to "exist in ambiguity" or to tolerate disorder'. (Martindale 1990)

This capacity to tolerate ambiguity, which links with complexity and novelty, is deemed essential in the sense that creative problem solving involves an ambiguous period in which the problem is clarified and solutions considered. (Some examples in these studies may seem odd, for instance Barron and Welsh's 'classic demonstration' that 'creative persons' preferred 'smudgy, complex, asymmetrical drawings over simple and balanced ones', or the suggestion elsewhere that the attraction to fantasy and novelty was manifested in the finding that 'creative people' tended to be 'stronger believers in psychical phenomena and flying saucers, despite their generally higher intelligence level' (Barron 1969).

The tendency of early studies to find that creative individuals tended to have a high tolerance for ambiguity was accompanied by a further observation that ‘creative individuals might deliberately seek ambiguities and use the setting up of ambiguities as an important part of the creative process,’ identifying this as a strategic tool, or perhaps simply reflecting the dialectical nature of thinking. Other variations reinforced the idea. Bruner observed that ‘creative outcomes often occur as a result of resolving ambiguities.’ (Glover, Ronning & Reynolds 1989). Koestler suggested that creativity often involves not a combination of isolated elements but a connection of ‘two entire matrices of thought’. (Koestler 1964) Amabile stressed the priority of heuristic solutions (no known recipe) over the methodical clarity of algorithmic formulae. (Amabile, 1983).

Some accounts stress the emotional (and professional) consequences of not being able to hold two simultaneous ideas in suspension long enough to solve particular problems. In tolerating ambiguity, it is necessary to withstand the uncertainty and chaos that result when the problem is not clearly defined or when it is unclear how the pieces of the solution are going to come together. Invoking Lavoisier, Sternberg and Lubart point out that ‘relationships in transition are ambiguous...fumbling rather than working according to plan. Ambiguity is uncomfortable and anxiety provoking’ (Sternberg&Lubart,1995). In order to optimize creative potential, there is a need to tolerate the discomfort of an ambiguous situation long enough so that what is produced is the best possible solution. A recurrent example is Linus Pauling’s work on the double helix, which he published before he had the complete solution that Watson and Crick were able to find by building on the earlier work. ‘If Pauling had tolerated ambiguity just a little longer, he might have been the first to discover the correct structure of DNA.’ (Sternberg&Lubart, 1995)

Prefiguring the specific focus on the role of ambiguity tolerance in psychological studies of creativity, literary theorist William Empson’s 1930 study of poetic ambiguity, *Seven Types of Ambiguity*, explored variations on the effects of multiple metaphorical meanings. In this classification, an instance of ambiguity could:

1. make a detail effective in several ways at once;
2. resolve two or more alternative meanings into one;
3. present two apparently unconnected meaning simultaneously;
4. show the complicated state of mind in the author through alternative meanings,
5. present a ‘fortunate confusion’ as the author discovers his idea in the act of writing;
6. force a reader to invent interpretations through the irrelevance or contradiction of what is said; or
7. mark a complete division through a full contradiction.

Psychoanalyst Ernst Kris noted how Empson showed the ways in which aesthetic experience is enriched by the multiplicity of meanings in poetic language. Metaphor may also serve as an instrument for multiplying ambiguity; the relation between elements themselves ambiguous to some degree generates a new and larger range of significance. Moreover, the relation serves at the same time as a mechanism for integration, indicating the direction along which unification of the multiple meanings is to be achieved. In short, ambiguity functions in poetry, not as a carrier of a content which is somehow in itself poetic, but as the instrument by which a content is made poetic through the process of re-creation. (Empson 1930; Kris 1953)

Extending the consideration of ambiguity to visual images, Dario Gamboni has explored the ways in which ambiguous combinations suggest the character of what is susceptible to several

interpretations. This expresses the character of ‘what belongs to two categories, what lacks precision and disturbs.’ His examples range from Archimboldo’s heads composed of multiple objects, to popular optical illusions offering dual readings like the duck-rabbit or the alternately-old-and-young woman, and includes works which, like Jasper Johns’ ‘Spring’ take illusion and multiple readings as explicit subjects. (Gamboni 2002) It might be conjectured that the whole history of representation involves multiple readings in which a wall, a fresco or a canvas is necessarily perceived ambiguously as both the ground that carries the image and what the image represents. James Elkins drew particularly on Empson’s fourth category as a demonstration of a ‘confusion of palimpsestic indecisions.’ He notes Kris’ comment that ambiguity plays a central role in both creation and communication of art, the latter’s success depending on setting in motion a process analogous to that of the former. (Elkins 1999)

## **II The ‘Sticks’ Exercise**

These accounts suggest that the notion of ambiguity informs creative practice in a range of ways. By looking in detail at the process of a specific group exercise that seems to build on this notion of multiple meanings, we want to explore how the linked notions of tolerance of ambiguity and creativity may have informed its development, though it was not at all designed with those concepts in mind. Ingredients of play and collective fantasy, also identified as markers of creativity, may also have been key to its effectiveness.

This exercise evolved from an experiment in team teaching a group of mature students on a certificate course in art and design. Most of this group, despite having had extremely competent careers and experience of managing complex family structures, were having difficulty with the theoretical studies requirements for writing, and in particular with structuring essays. In attempting to find visual metaphors for the processes of organising ideas in writing, we started with straightforward sorting of categories of objects (representing facts and ideas) in hierarchies to represent the structure of ideas composing arguments in writing.

This initial exercise was not designed beforehand, but emerged spontaneously as a result of a visual dialogue between the two tutors running the theoretical studies component of the course. We began, in a playful way, to use common objects that everyone might have with them, in this instance, bags or briefcases, and to pair and sort them based on similarities of shape, colour, or function. The need to identify explicit criteria for sorting made the point effectively that different kinds of organisation were possible depending on the applied criteria and that overlapping criteria required decisions. At some point in this process, some of the participants discovered that assigning personal names to the bags could stand for a collection of qualities and became a kind of shorthand in the process both of giving a sense of overall shape and character and enabling the sorting process. A sleek Swedish aluminium briefcase became ‘Sven’; a soft rainbow-knitted shopping bag was christened ‘Rosie’. The visual and tactile qualities that emerged in the naming process allowed sorting, categorization, and arranging in sequences to be addressed in a familiar way, using existing associations as markers. That these decisions were collective and debated was an important part of the process.

This initial experiment in representing structures of written ideas with available visual shapes, was the starting point for a more elaborate version of this exercise in another institutional setting. This has since been used in a variety of student and staff development contexts with remarkably memorable and socially cohesive effects. The setting, a large country house in

attractive wooded grounds, offered readily available (free!) learning materials, in this case, fallen sticks. Instructions for the exercise were given in the following way: **You have 10 minutes to find a fallen stick that you like the look of.** Initial disbelief gave way to playful or sometimes slightly reluctant compliance with the instruction. Demands for immediate explanation of ‘desired outcomes’ were resisted. Participants were asked to trust that there was a serious point to the exercise, but that it might work less effectively if explained in detail beforehand. Working with the mystery of unintended outcomes was key.

1. **Bring it back to the group.** The initial effect was puzzlement giving way to genuine interest as they became intrigued by the range of interpretive choice evident in what was brought back. This occasionally gave way to general hilarity and the kinds of objects, ranging from tiny broken twigs, to massive branches, (once almost a whole tree!), while the interpretation of ‘stick’ expanded to include mops, brooms and pencils. It was important to ask that the group trusted our intentions; we explained that we had good reasons for suspending explanations, and that it was important to experience, for the moment, the discomfort of the ambiguity. Already even the sceptical had begun to enjoy the exercise, as they noted possible connections between personalities and choices, whether predictable or unlikely. There was general laughter, once they had managed to suspend disbelief.
2. **Naming. Round 1:** Seated so that everyone could see the stick and the owner, participants were asked to make decisions about the stick they had chosen, which were revealed to the group. They were asked: **‘If your stick had a human name, what would it be?’** We suggested that they avoid the literal ‘Twiggy’ or ‘Woody’ and go with the first ‘real’ name association that occurred to them on the basis of the appearance of the stick.
3. **Naming. Round 2:** **‘If your stick went to evening classes, what would it sign up for?’** Again we tried to avoid the obvious connections of ‘woodwork’ and ‘forestry’. This proved easy for most, and remarkably specific associations readily developed the unusual personalities and interests of the shape-evoked names e.g. calligraphy, oceanic studies, Italian cooking, theology.
4. **Naming. Round 3:** **‘What radio station does he/she listen to?’** By this time, the group was becoming familiar with the emerging personalities of ‘Fred’, ‘Sergio’, ‘Penelope, and ‘Kwame’ and their ‘personal’ likes and dislikes. They appeared to enjoy the play of the exercise, and began to contribute enthusiastically to the collective fantasy that was emerging. Even the shy were able to participate, as there was no judgement of right or wrong at stake, and extremely interesting responses about personal associations with names and cultural difference emerged. And as with all exercises, permission was given for ‘the right to remain silent’, which, paradoxically, usually ensured that everyone participated.
5. **Pairing:** **‘If your stick (but by now usually named) wanted to spend an evening with another in the group, who would it be and what would they do/where would they go?’** With surprisingly little trouble, we learned that the delicate, graceful Andrea and Emily who listen to Radio 3 would be attending the ballet, and that Capital addicts, straightforward, rugged Tom and Bert, would going for a pint at their local. The awareness of stereotypes was conscious and acknowledged in informal but explicit ways. Now side by side, the sticks’ visual similarities and shared formal

characteristics were evident without explanation as the source of the associations and the collective fantasy. (An interesting feature of this whole process is that the projected characters rarely seemed to be self-portraits, and there was often general confirmation of the appropriate matching of names and shapes, while offering up cultural assumptions for discussion.)

6. **Sudden switch of context to transform the interpretation of the object:** Participants were divided into groups of five or six, and asked to think differently about the original sticks, now invested with personalities and histories in the collective story woven about them, by being asked to ‘forget’ or ‘suspend’ the assigned identities and to think of them purely as visual forms and physical objects. These they are asked to organize into an orderly sequence, agreeing the criteria, making decisions about classifications, categories and sequences within the chosen organisation, while also noticing the group dynamic involved in the decision-making. They of course discovered in the process, that deliberate ‘forgetting’ is harder than they imagined, and that they often referred to the stick’s ‘name’ in the process. Here they were experiencing the ambiguity of holding two or more possibly contradictory interpretations in mind at the same time.
7. **Establishing and recognising criteria for sorting:** When final arrangements were agreed, each group’s ‘order’ was shown to the rest of the groups, who were asked to try to identify the criteria for organisation into classifications/categories and sequences, e.g. length, texture, diameter, colour, degree of complexity.
8. **Final question: ‘What might this have to do with writing?’** This led to discussion of the difficulty of arriving at clear structures to inform written argument, the variable alternatives for order in writing and of the ways in which play with visual diagrams representing alternative possibilities might be helpful.

What happened in this exercise? A great deal more than the sum of the parts. There had been collective storytelling, playful interaction, imaginative engagement with analogical thinking, the development of a shared culture with a language whose created meanings were recognisable only to the participants (many reported the difficulty of explaining at home what went on in the session). Only this group could understand; it became social glue, a common point of reference for the rest of their time together, and could be used as a shorthand for all the discussions that emerged. These have varied from group to group, but all have encompassed issues of inclusivity and gender, the importance of shared values, the crucial and problematic nature of establishing agreed criteria, and the difficulty of absolute clarity. For the tutors, it elicited important information about the dynamics of a group and capacities of individuals. If our belief that it is important to find out as much as possible about a group in order to identify starting points and associations to inform ways of working with that group is true, then this kind of approach could become an extremely important diagnostic tool.

The effects have been striking. The relaxed tone broke down barriers, and helped include the resistant. It created a setting for easy social collaboration. The simple permission to enjoy a task that was also an effective learning strategy with a serious point was unusual and welcome. The exercise has repeatedly been the one that participants recall for years afterward, often recapturing specific details of the personalities created during the session. We still recall vivid details of many of these attributes. Perhaps the most delightful was a quiet, restrained law lecturer who returned in fits of giggles with huge distorted branch stuck up the

sleeve of his suit jacket: ‘This...’ he cried with eerie glee, ‘is Boris!’. Another let his modest stick (‘Roger’) deliver a final power-point presentation; the stick’s portrait appeared in every slide of ‘Roger’s Guide to the Isle of Mull’.

It is also a setting that, like the linked domains of metaphors, encourages the holding in mind of simultaneous contrasting meanings. This is, we would argue, an example of a process that demands an emergent ‘tolerance of ambiguity’ in the development of an understanding of alternate possibilities of sequence and order. Could strategies deliberately using exercises that involve markers of creativity become tools to develop creativity?

This exercise revealed further creativity traits, though ‘openness to experience, ability to make imaginative links, and willingness to play’ could perhaps be seen as implied components of a tolerance for ambiguity. The element of play seemed particularly important, not only for its socially cohesive effects in the group. Amabile considers this trait in her account of groups of children who were either ‘trained in play’ or allowed to engage in make-believe play before the creativity testing. This study (which incidentally also involved play with sticks) demonstrated the facilitative effects of play on creativity. One group was allowed time to play with blocks and sticks before the testing session began. Other children either received training for the task or proceeded directly to testing. The study showed that free play facilitated creativity, not only because play gave children the opportunity to discover new properties of objects, but also because play stimulated fantasy which encouraged creativity, suggesting that ‘engaging in fantasy might, in itself, lead to increases in creativity’. (Amabile 1996)

### **III. Order and Disorder**

An initial aim of the ‘Sticks’ exercise was to explore possible processes of organising and ordering, whether of objects or ideas, in relation to writing. The ‘tolerance of ambiguity’ involved in this ordering process is sometimes described (for instance, in indices) as ‘tolerance of disorder’. While it may be comforting to the habitually untidy to see ‘disorder’ as a marker of creativity, the two terms suggest quite different conceptions and processes. Forms of order that evolve through a creative process of considering multiple possibilities for structuring, a complex ‘emergent’ order, seem quite different in origin and intent from the rigid imposition of a predetermined orderly system of the kind that characterise some higher education systems.

What we are faced with in some university structures, where the experienced order may seem one of constraint and prescriptiveness, suggests the oppressive shadow of the kind of flexible and responsive order we have been describing, Mary Evans has stressed its effects in *Killing Thinking*. (Evans 2004). Her introduction quotes Nicholas Royle:

In British universities all teaching is judged (by a sort of spectral, invisible or scarcely visible body of authorities) in terms of ‘learning outcomes’. As a teacher one is obliged to act and feel like a sort of automaton, someone concerned with ‘delivery of unit’ (rather than ‘teaching of course’) the outcome of which should be specifiable in advance. Teaching is becoming mechanized in a way that makes caricature seem improbably realistic: Dickens’ Mr Gradgrind would have found it difficult to believe. It is not only the teacher who becomes an automaton, but also the student, for he or she too is obliged to live up to the ‘learning outcomes’ set

down in advance, in other words not to live at all, merely to receive delivery.  
(Evans 2002)

A similarly imposed prescriptive order can be seen in what Tamsin Haggis describes as the ‘official discourse of mainstream pedagogical theory in higher education’. In a recent paper exploring the effects of the centrality of the ‘approaches to learning/conceptions of learning’ model, she notes the lack of analysis and debate in relation to these conceptual models and the narrowness of the range of models used. She underscores the problematic nature of the now widespread use of the sharp distinction between ‘deep’ and ‘surface’ learning, suggesting that the tentative conclusions of the original Marton and Saljo research on ‘approaches’ have been reified by reducing the terms to ‘deep learners’ and ‘surface learners’. (Though the third term ‘strategic’ has sometimes been added, this refers to an alternation between the two positions, and not a distinct third term.) We are left with a misleading binary opposition. (Haggis 2003)

While elaborations of this straightforward opposition have added more steps and distinctions in ‘observable learning outcomes’, the frameworks still appear prescriptive. Haggis notes that attempts to ‘induce’ deep learning have been shown to sometimes have the opposite effect of creating an increase in surface approaches’. The now widely promoted notion of ‘constructive alignment’ of teaching methods, assessment tasks and classroom climate with intended learning outcomes are described as intended to ‘trap’ students into engaging with appropriate ‘deep’ approaches. She argues that these polarised notions have been adopted in attempts to categorize students as one or the other, and, further, that the aims of promoting ‘deep learning’ as desirable, reflect academics’ (rather than students’) aspirations.

While accepting that there may be commonalities in approach, it is also important to ask how differences in the context of individual lives affects modes of learning. She urges further for a need ‘to try to understand learning as an individual and situated process’ and to ‘explore the ‘shadows’ cast by mainstream pedagogical research. It is arguably, she concludes, at least partly the unnamed and unexpected factors and interrelationships involved in ‘learning’ which deterministic probabilistic models cannot take account of, that are likely to be the cause of unpredictable outcomes’. (Haggis 2004)

In a similar vein, Andy Northedge suggests that students need ‘organised excursions into their specialist discourse communities.’ He argues that:

‘the development of the student’s writing voice is critical. To become a speaker of a discourse is to acquire a new identity as a member of that discourse community. A central struggle throughout studenthood is to establish a voice and an identity as a legitimate speaker/writer within the specialist community. This approach to assignment writing sits uncomfortably with contemporary calls for tightly specified course outcomes and detailed performance criteria. Nevertheless, it enables profound learning and highly meaningful assessment, because it reflects the ambiguities and indeterminacy in what is fundamentally a sociocultural process of negotiating meaning.’  
(Northedge 2004)

#### **IV. Conclusion**

This paper originated in our curiosity about why a particular group exercise had become so memorably useful. Exploring some strands of the creativity literature has reinforced our

initial feeling that the notion of ‘tolerance of ambiguity’ could help explain its effectiveness. We have seen that this trait often appears among the attributes of creative persons. The notion of ambiguity itself is a powerful force in the arts, offering the richness of multiple interpretations; as Elkins asks, ‘why are our pictures puzzles?’ Could deliberate play with the ambiguity of pictorial or verbal language operate as a conscious imaginative strategy? In an academic culture that values cogent thinking and clarity of argument, it is interesting to speculate about the imaginatively untidy origins of some of those orderly arguments. Scientific discoveries, we learn, can result from random flights of metaphorical connection or spontaneous, conflicting images. Einstein famously imagined himself hurtling through the heavens astride a light beam. Simonton describes creativity as a ‘constrained stochastic process’. The term ‘stochastic’, literally ‘conjectural’, suggests much more uncertainty and unpredictability than would be expected from a forthright, rational process. At the same time, he claims, to hold that creativity is stochastic is not tantamount to the assertion that it is totally random and therefore capricious and illogical. He argues that creativity has the characteristics of ‘constrained stochastic behavior’. (Simonton 2004) Mary Evans reminds us that ‘debate, discussion and even disruption do provide interest and inspiration and it is often the less well-ordered context which gives rise to the more creative work.’ (Evans 2004)

The challenge may be to respond creatively to the unwelcome constraints of imposed systems, less by resisting them than by finding ways of working personally and imaginatively within them. If we can tolerate the ambiguity of the (insoluble?) problem of working within systems that often seem to function as anti-creative forces, this approach may offer strategies that could help us live with the discomfort of the situation. We can, for example, widen the debate about the nature and effects of imposed order. We can encourage the use of more subtle pedagogical analyses and approaches. While radically shifting current patterns is difficult, we may be able to reshape students’ experiences by drawing on other models. As Haggis suggests, the discourses of complexity may allow, like emergent growth of communities and architectures, the growth of forms of organisation that resemble the structures and functions of imposed order, but differ fundamentally in conception. In revaluing the personal, collective and face-to-face force of collective negotiations of meaning, ambiguity may serve as a creative tool, fuelling changes from within.

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