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## Teaching creativity – a systemic viewpoint

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### **Introduction**

An informal study of art and design schools within New Zealand indicates that the teaching of creativity is dealt with at a rather simplistic level with the focus being predominantly on the individual. Experience of design schools within the United Kingdom would indicate a similar level of attention to the subject of creativity.

There are generally four approaches to creativity, which are dealt with individually or in combination. The first and oldest is the belief that creativity comes from God and that we are empty vessels waiting for the Muse to pour the creative suggestion into us – the creative leap. The second tends to focus on natural abilities and personality traits, the effect of which is to encourage students to behave in certain pre-conceived ways. The third is socio-dynamic, which emphasises the importance of the social and environmental factors around the individual. Once again, the result is a tendency for students to behave in certain ways to encourage their own creativity. The fourth approach is the pragmatic generative approach, which encourages the use of new techniques.

Over recent years, creativity and innovation have also been taught in management programmes. Once again, there are only a limited number of approaches to the teaching of creativity. These tend to be based on personality traits and pragmatic generative techniques. The latter have gained perhaps the most ground in these institutions owing to the work of authors such as Edward de Bono, Roger von Oech, Michael Michalko and Arthur van Gundy. The teaching of innovation is generally dealt with at the individual, creativity level or at an organisational bureaucratic systems level.

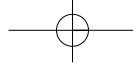
A study of the literature on creativity would indicate that there are many more documented approaches to the study of creativity, especially in recent years. However, none of them appears to deal adequately with the socio-political aspects of creativity in real life contexts.

The purpose of this paper is to present some of the thoughts being developed in the School of Design at UNITEC Institute of Technology, New Zealand as part of the design management programme. The aim has been to develop a systemic viewpoint of creativity that will take into account the aspects of diffusion of ideas into social groups. This is a work in progress and has been addressed from a perspective of 'how does one manage creativity and innovation?'

### **Research approaches to the study of creativity**

The study of creativity has a long history. However, serious research into creativity, certainly from a western perspective, only really took place from the middle of the 20th century. Many believe the trigger to be Guildford (1950) who in his APA Presidential Address challenged psychologists to pay attention to what he found to be a neglected but extremely important attribute in human behaviour, namely creativity. The focus at the time was from a psychological and behavioural point of view. As knowledge and experience developed, other frameworks for research into creativity started to emerge.

Prior to Guildford's plea, the earliest accounts of creativity were based on divine intervention. The creative person was seen as an



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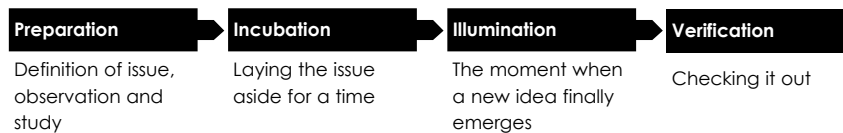
empty vessel that a divine being would fill with inspiration. The individual would then pour out the inspired ideas. These mystical approaches dominated the study of creativity for many thousands of years and still have a major influence today.

The psychodynamic approach can be considered the first major twentieth-century theoretical approach to the study of creativity.

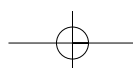
Based on the idea that creativity arises from the tension between conscious reality and unconscious drives, Freud (1908/1959) proposed that writers and artists produce creative work as a way to express their unconscious wishes in a publicly acceptable manner.

Later, the psychoanalytic approach introduced the concepts of adaptive regression and elaboration for the study of creativity (Kris, 1952). Adaptive regression, the primary process, refers to the intrusion of un-modulated thoughts in consciousness. Un-modulated thoughts can occur during active problem solving, but often occur during sleep, intoxication from drugs, fantasies or daydreams, or psychoses. Elaboration, the secondary process, refers to the re-working and transformation of primary processes through reality-oriented and ego-controlled thinking.

Soon after the psychoanalytical approach, process models of creativity started to be developed. One of the earliest models of the creative process is attributed to Graham Wallas, based on the work of the mathematician Poincaré. Wallas (1926) proposed that creative thinking proceeds through four phases:



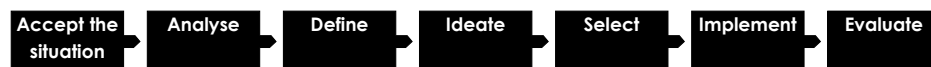
*Source: Wallas (1926)*



The inclusion of incubation followed by sudden illumination in this popular model may explain why some people view creative thinking as a sub-conscious mental process that cannot be directed.

Many other models further expanded on the theory of subconscious and uncontrollable events. These models went on to present the theory that creative ideas emerge from a largely uncontrollable Darwinian process of random variation and natural selection.

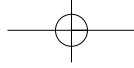
In contrast to these models Perkins (1981) argued that subconscious mental processes are behind all thinking and therefore play no extraordinary role in creative thinking. Just because we cannot fully describe our thought processes does not mean that we are not in control of them. Further, Perkins argues, just because random events play a part in some acts of creation, this should not be taken to imply that they are the only source of all acts of creation. He coined the term 'ideate' to imply the sub-conscious and conscious generation of ideas.



*Source: Perkins (1981)*

While some models still lean towards this magical process, the predominant models lean more towards a theory that novel ideas emerge from the conscious effort to balance analysis and imagination. The systematic combination of techniques for directed creativity and techniques for analysis continues as a strong theme in several more recent models.

In his APA address, Guilford (1950) proposed that creativity was in all of us and could be measured with a psychometric approach using paper-and-pencil tasks. Building on Guilford's work, Torrance (1974) developed the Torrance Tests of Creative Thinking. The predominance of the psychometric perspective is surprising considering the widely held belief that creativity is undefinable and unmeasurable (Callahan, 1991); Khatena, 1982).



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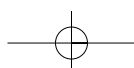
Creativity tests tend to be of two types, those that involve cognitive-affective skills and those that attempt to tap a personality syndrome.

The cognitive approach to creativity seeks to understand the mental representations and processes underlying creative thought. Finke, Ward & Smith (1992) proposed what they called the Geneplore model, according to which there are two main processing phases in creative thought: generative phase and an exploratory phase. In the generative phase, the individual constructs mental representations, which have properties promoting creative discoveries. In the exploratory phase, these properties are used to come up with creative ideas. A number of mental processes may enter into these phases of creative invention, including the processes of retrieval, association, synthesis, transformation, analogical transfer, and categorical reduction.

Work in the social-personality approach has focused on personality variables, motivational variables, and the socio-cultural environment as sources of creativity. Researchers such as Amabile (1983), Barron (1968, 1969), Eysneck (1993) have noted that certain personality traits often characterise creative people. These traits include independence of judgement, self-confidence, attraction to complexity, aesthetic orientation, and risk taking.

Proposals regarding self-actualisation and creativity can also be considered within the personality tradition. According to Maslow (1968), boldness, courage, freedom, spontaneity, self-acceptance, and other traits lead a person to realise their full potential. Focusing on motivation for creativity, a number of theorists have hypothesised the relevance of intrinsic motivation, need for order, need for achievement, and other motives.

The most recent practitioner perspective has been taken by pragmatics who have taken a generative approach aimed purely at producing more and more ideas (De Bono, 1971, 1985, 1992; Osborn, 1953; Gordon, 1961; Adams, 1974, 1986; Von Oech, 1983; Michalko, 1998). This perspective has been of particular interest to the business and management schools.



### Towards a systemic viewpoint

Most of the research into creativity has had a focus on the individual and how they can become more creative. In some reference framework, all the approaches and explanations have validity and there is plenty of data and evidence to support them. However, from an innovation point of view, they do not take into account the actual use or uptake of ideas.

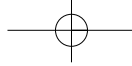
More recent scholarly works on creativity hypothesise that multiple components must converge for creativity to occur (Amabile, 1983, 1996; Csikszentmihalyi, 1988). At the level of explicit theories, Amabile (1983) describes creativity as the confluence of intrinsic motivation, domain-relevant knowledge and abilities, and creativity-relevant skills.

The creativity-relevant skills include:

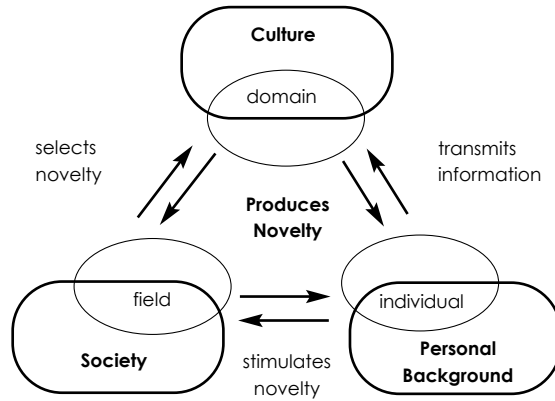
- a cognitive style that involves coping with complexities and breaking one's mental set during problem solving;
- knowledge of heuristics for generating novel ideas; and
- a work style characterised by concentrated effort, an ability to set aside problems, and high energy.

Csikszentmihalyi (1988, 1996) takes a different, systems approach and highlights the interaction of the individual, domain and field. An individual draws upon information in a domain and transforms or extends it via cognitive processes, personality traits, and motivation. The field, consisting of people who control or influence a domain, evaluates and selects new ideas. The domain, a culturally defined symbol system, preserves and transmits creative products to other individuals and future generations.

Csikszentmihalyi (1999) further argues that if creativity is to have a useful meaning in management terms, it must refer to a process that results in an idea or a product that is recognised and adopted by



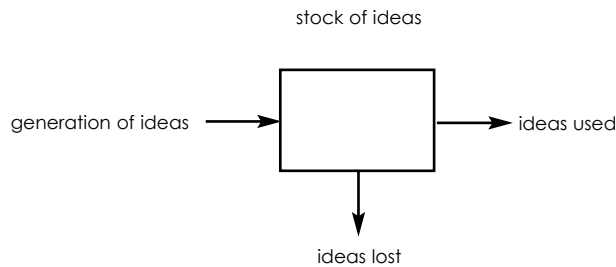
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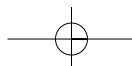
*Csikszentmihalyi (1999)*

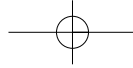
others. The sole act of creation is not enough to be useful in a business sense. Creativity is not the product of single agents but of social systems making judgements about the agent’s offerings. The concept of creativity in a business sense has to be grounded in what the social system is willing to accept. It is therefore necessary for a creative idea or product to be accepted (Simonton, 1988, 1991, 1994).

If the purpose of creativity is to generate ideas, then we must not only look at the ‘stock’ of ideas, but also where those ideas go and how they get there:



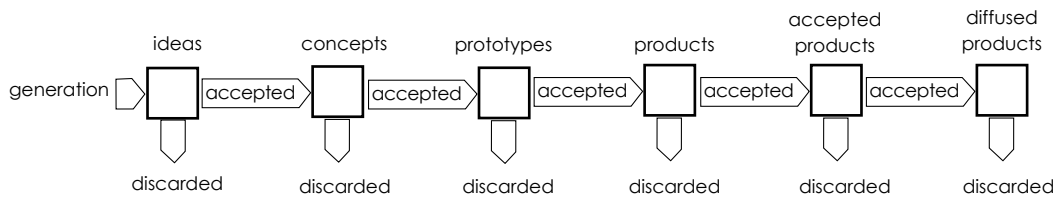
For ideas to be used they must be externalised and articulated to others for acceptance. For the purposes of the Master of Design Management programme at UNITEC Institute of Technology, design is defined as the process that gives form to ideas. Hence, ideas are developed through a design process.





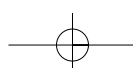
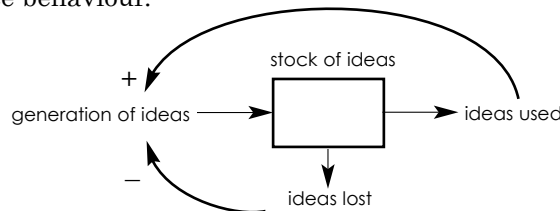
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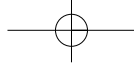
In the process of design, ideas are generally developed into conceptual models, then prototypes, then products which are then accepted, or rejected, by the consumer/society. To complete the picture, these ideas, now embodied as products, diffuse into society where they go on to take on a meaning and function perhaps different to that intended at the start.



For the purposes of this model, concepts are defined as loose models that have been grounded in some form of reality. They may still be metaphoric in character and intangible. Prototypes start to become tangible and have some physical reality to them. Accepted products are products that are successfully commercialised. Diffused products are those that start to develop a longer-term meaning in society. This is also the area where brand value starts to develop and the consumer develops a deeper relationship with the product and the organisation.

From a management perspective, an understanding of the dynamics at each stage is essential for innovation, especially if it is to be sustained over a period of time, for example, in terms of feedback, the use of ideas encourages creativity – nothing succeeds like success. Conversely, ideas getting lost, for whatever reasons, not captured, ignored, quashed, is a huge demotivator, which will also reinforce behaviour.





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The way ideas are used is through a process of persuasion.

Persuasion comprises of the following components:

persuasion = communication + validation + acceptance + influence

There are other factors that also come into play which have been omitted at this stage, including timing, luck etc.

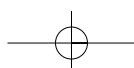
Communication takes many forms and changes depending on which stage it takes place. At the ideas/conceptual stage the communication tends to be intangible and more metaphoric. It relies on the communication skills of the presenter, perhaps even the theatre of presentation for the acceptance of the idea. At the prototype/product stage there is a tangible mediate in the form of a hard model which does a lot of the communication. When it gets to the product acceptance and diffusion stages, the communication changes once again to intangibles and story telling.

The validation and acceptance components include the traditional metric based decision matrices based on measurable facts. However, they also have to take into account the intangibles such as the vision and values of the people and the organisation – what meaning does the idea have to those people? This starts to bring in concepts of mental models, capabilities, ethics etc.

The influence component is about the socio-political nature of the decision making process. Generally decisions are made not only of tangible facts but on political issues, egos, politics etc.

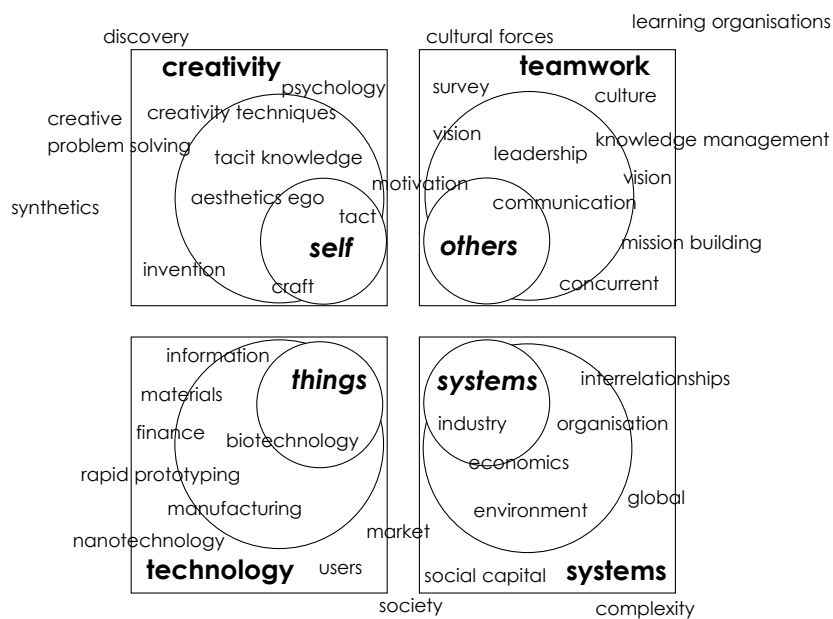
### **Managing creativity and innovation**

The Master of Design Management programme at UNITEC Institute of Technology is concerned with the management of the 'design' stages of projects. These are the stages that are usually ill defined – the fuzzy front end as coined by Reinerstein (1996). Design is defined as the process of giving form to ideas, hence it could be the design of an organisation, a new type of strawberry, a research project. The



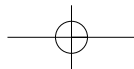
focus is from a knowledge creation, knowledge sharing and knowledge application perspective. The programme is essentially about the management of creativity and innovation.

Systems thinking forms a core philosophy of the programme and the management of creativity and innovation are viewed as a socio-political system. The core modules are based on the management competencies of Boyatzis and Burgoyne:



The fourfold division into ‘self’, ‘others’, ‘things’ and ‘systems’ is derived from the work of Boyatzis and Burgoyne on management competencies.

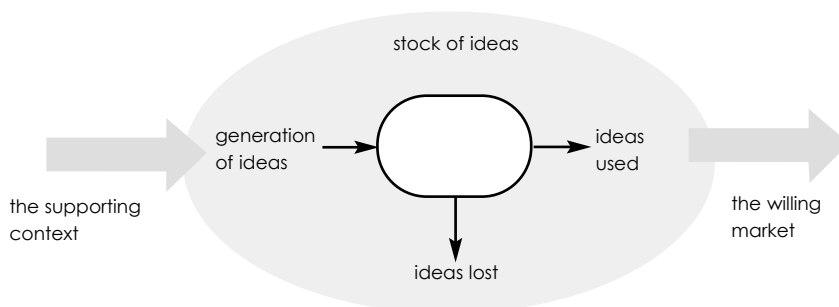
Creativity looks at the aspects of *knowledge* creation with a study of the various perspectives on creativity. Teamwork or people management looks at the processes of *knowledge* sharing and addresses the issues covered above. Leadership, culture, vision, values, motivation, communication all form a major part of the curriculum. Technology looks at the tools and techniques for *knowledge* application. The systems course not only provides a philosophical way of looking at the world, but also allows us to look at the whole and where the ideas go, society and ethics.



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The programme is still in its early stages and the arguments, conjectures and thoughts presented above are being constantly reviewed.

It is believed that the teaching of creativity with an understanding of the supporting context or an understanding of the willing market will help in the management of creativity and innovation. The supporting context provides an understanding of the individual and organisational competencies and capabilities as well as the aspirations and values, whereas the willing market indicates an understanding of the process of the ideas, concepts and products becoming accepted.



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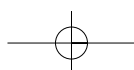
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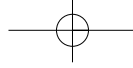
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