CREATIVITY IN PRACTICE

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creative academic magazine

CREATIVITY IN PRACTICE

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Commissioning Editor's Introduction

Norman Jackson

Background

Creative Academic is concerned with understanding the nature of creativity in different contexts and the ways in which higher education teachers encourage learners to use and develop their creativity in particular disciplinary contexts: contexts that may eventually result in working practices in a particular domain. Over the last three years we have been developing the idea that creativity, like learning and achievement, is an ecological phenomenon. We began this exploration in November 2017[1].

Propositions

Through this exploration we are evaluating a number of propositions. Firstly, we are exploring the idea that when we are involved in a significant challenge, our mind and body does not just inhabit a physical environment, rather, when trying to learn and achieve something significant, we are in a deep relationship with that environment. From an environmental perspective it does not make sense to talk about the environment in which we are learning and trying to achieve without reference to ourselves as the organism that is perceiving and interacting with the environment. 'Every organism has an environment: the organism shapes its environment and environment shapes the organism. So it helps to think of an indivisible totality of 'organism plus environment' - best seen as an ongoing process of growth and development' [2:20].

Proposition 1: We as whole persons engaging with our problems, challenges and opportunities and our environment, are indivisible.

For any organism learning how to perceive the environment and find meanings in what is perceived and then act on those understandings in ways that are beneficial, is fundamental to its very existence and flourishing. The same applies to people. If we focus on the world of a practitioner, learning how to perceive the environment and find meanings in what is perceived and then act on those understandings in ways that are beneficial is at the heart of being an effective, productive and creative practitioner in any field.

The second proposition we want to explore is the way we sense and perceive our environment and the problems, challenges and opportunities it contains, is through what we are calling an *ecology of practice*. Ecologies of practice are the tangible, embodied expressions of thinking and action that enable us, to perceive and interact with our environments and the problems and opportunities contained within them in order to discover meanings relevant to our goals and purposes (Figure 1).

Figure 1 Framework for appreciating the components of a learning ecology[3]

'An individual's self-created *[ecology of practice]* grows from the circumstances (contexts and situations) of their life and is established for a purpose that is directed to accomplishing proximal (immediate) goals connected to more distal goals. Their ecology comprises themselves, their environment, their interactions with their environment and the learning, development and achievement that emerges from these interactions. It includes the spaces they create for themselves, their processes, activities and practices, their relationships, networks, tools, other mediating artefacts and the technologies they use, and it provides them with affordances, information, knowledge and other resources for learning, developing and achieving something that they value.' [3:72]
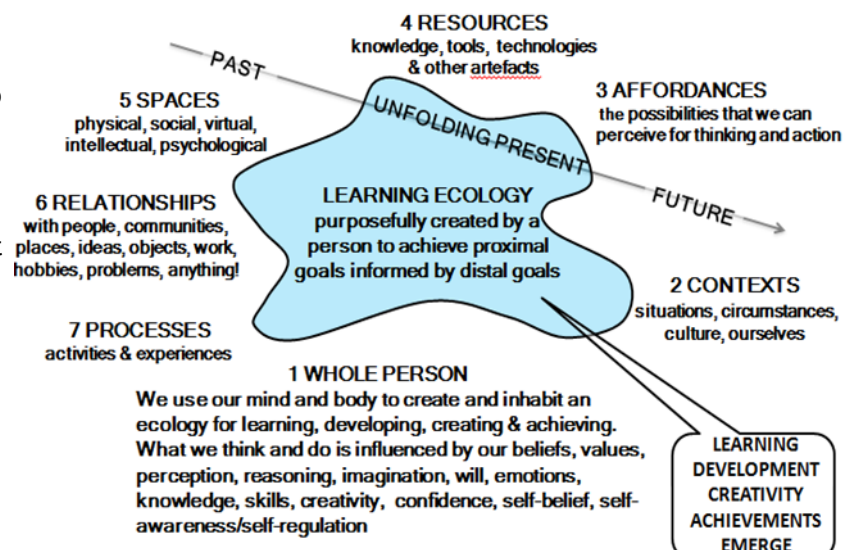
Proposition 2: Our ecologies of practice connect and enable us, as a whole person, to physically, intellectually and emotionally interact with a complex environment in order to engage with the problems, challenges and opportunities we care about.

Every individual has a unique past history, personality and capabilities and unique interests and purposes interacting with our environments, that we have chosen or have been put into, that contain challenges and problems requiring unique solutions. It is little wonder that in such circumstances there is considerable scope for personal creativity to flourish.

Proposition 3: Our personal creativity emerges from our uniqueness as a person and the ecologies of practice we create to learn and achieve, that deeply connect us to our environment and the problems, challenges and opportunities it affords.

Here we might draw on the ecological definition of personal creativity proposed by Carl Rogers which he considered to be 'the emergence in action of a novel relational product growing out of the uniqueness of the individual on the one hand, and the materials, events, or circumstances of their life'[4] This concept of creativity connects individuals, their interests and the problems they care about and the whole environment in which they are living[4,5].

Proposition 4: Creativity and being creative means different things in different domains of practice.

"Although psychologists who study creativity have reached no firm and uncontestable answers to these questions the consensus in the field has moved over the past quarter century from a belief in domain generality to one of domain specificity…… Baer [6,7,8] provide[s] convincing evidence that creativity is not only content specific but is also task specific within content [domain] areas."[9]

Focusing on practice

In this project we are focusing our attention on the practice environment. We are aiming to examine the *ecologies of practice* people create in environments that are not structured specifically for learning. We want to explore how a person's creativity emerges from their practices. By 'practice' we mean 'action rather than [only] thought or ideas'[10], 'the application or use of an idea, belief, or method, as opposed to theories relating to it for example, the practice of teaching'[11].

By gathering stories of *practices* in different settings and contexts we want to see if the idea of an 'ecology of practice' makes sense to describe and theorize the way we relate to and interact with our environment and the people and things in it, to fulfil a particular purpose, achieve a significant goal, solve a problem or make the most of an opportunity. Through these personal illustrations, we want to explore how creativity featured in particular ecologies of practice.

In order to practise as a teacher, or perform any other complex role, involves a commitment to developing the skills, behaviours and ways of thinking that are necessary to fulfil the role in an effective, professional and creative manner. It is necessary to *practise* these ways of being 'to perform (an activity) or exercise (a skill) repeatedly or regularly in order to acquire, improve or maintain proficiency in it.'[11] In some domains practice means repeating a technique over and over again while in others practice is gained through participating in whole projects or complex experiences within which particular skills and techniques are used.

Another aspect of our project is to explore how practitioners develop themselves through education, training and practical experience and informal learning, to be able to practise in effective and creative ways. In this way we might connect the practices of teachers in higher education to the practices of practitioners in the world beyond formal education.

In this issue of CAM 9 we are examining the idea of ecologies of practice in the domain of arts therapies and therapeutic arts practices. This is an interesting domain because of the way practitioners work with their clients in an environment that is partly co-created and shared.

Invitation

We invite anyone who is interested in these ideas to join our collaborative project by sharing a written or oral narrative of the way they, or practitioners in their field of practice, tackle a typical problem or challenge. Narratives can relate to work, hobbies and interests, caring for others or any other context.

To join the project and view example narratives please visit
http://www.creativeacademic.uk/creativity-in-practice.html

If you would like to produce a written or oral narrative please contact the project leader, Professor Norman Jackson normanjjackson@btinternet.com.

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Commissioning Editor

Policy makers and higher education for that matter, often treat creativity as if it's a general skill that can be acquired and then applied to any context. Creative Academic's 'Creativity in Practice' project is based on the belief that creativity is predominantly a domain specific phenomenon, but what is the evidence for this? Dr John Baer, has researched the question of whether creativity is a general or domain specific skill for many years and in the following synthesis article (originally published in 'The Creativity Post' on May 13, 2016), he reviews the evidence and draws conclusions that are highly relevant for our inquiry into creativity in practice.

Domain Specificity of Creativity: Theory, Research, and Practice

John Baer

John Baer is a professor at Rider University. His research on the development of creativity and his teaching have both won national awards, including the American Psychological Association's Berlyne Prize and the National Conference on College Teaching and Learning's Award for Innovative Excellence. His books include Creativity and Divergent Thinking: A Task-Specific Approach; Creative Teachers, Creative Students; Creativity Across Domains: Faces of the Muse; Reason and Creativity in Development; Are We Free? Psychology and Free Will; and Essentials of Creativity Assessment. He has been a teacher and program director in gifted education and served as a Regional Director in the Odyssey of the Mind creative problem solving program. Dr. Baer is a Fellow of the American Psychological Association, and he has received research grants from the National Science Foundation, the Educational Testing Service, the National Center for Educational Statistics, the Carnegie Foundation, and Rutgers and Rider Universities.

Introduction

It is common to refer to people as 'creative' (or 'extremely creative,' 'not very creative,' etc.), but what do such attributions imply? Does this suggest that the person so identified is creative in everything (or at least most things) she does? Should we expect someone who is creative in one area to be generally above-average in creativity across the board? Put another way, do the skills that lead to creative performance in one domain typically transfer in ways that promote creativity in other, unrelated domains? These are questions that have been important to creativity researchers and theorists[1-8] and to creativity trainers[9-10].

Although psychologists who study creativity have reached no firm and uncontestable answers to these questions, the consensus in the field has moved over the past quarter century from a belief in domain generality to one of domain specificity. The first (and to date only) Point-Counterpoint debate ever sponsored by the Creativity Research Journal[11,12] focused on this question, which is central to our understanding of creativity. Because an accumulating body of research in the decade preceding this debate had suggested that the skills, dispositions, aptitudes, traits, propensities, and motivations that lead to creative performance vary from domain to domain[3,13-17] even the author arguing for domain generality in that Creativity Research Journal Point-Counterpoint debate on this question acknowledged that domain specificity theory seemed to have already won the argument, overturning years of mistaken notions of domain generality.

Recent observers of the theoretical[18] and empirical[19, 20, 7] creativity literature could reasonably assume that the debate is settled in favor of content specificity. In fact, Baer[14,15,21] provided convincing evidence that creativity is not only content specific but is also task specific within content areas.

This debate is not over, but in the thirteen years since that landmark *Creativity Research Journal* Point-Counterpoint exchange, the evidence for domain specificity has only grown stronger (for a recent summary, see Baer[22]). The question is not one of whether or not the cognitive skills that underlie creativity are domain-specific – to some extent everyone now agrees that they are – but rather whether or not there are any creative thinking skills that are truly domain general. As briefly outlined below, the evidence for such skills is surprisingly weak.

The following three sections of this paper will (a) summarize the evidence for domain specificity of creativity, (b) explain how creativity researchers and theorists make sense of these findings, and (c) suggest what this research and the conceptions of creativity that are based on it imply for creativity training, with special attention to the development of creative writing skills.

Evidence for domain specificity

The two competing theories about creativity – that it is domain-general or domain-specific – make very different predictions regarding actual creative performance, and this difference makes testing these theories fairly straightforward. Here's how one creativity researcher summarized how these predictions should differ:

Domain generality would be supported by high intercorrelations among different creative behaviors and a common set of psychological descriptors for those behaviors, while domain specificity would be supported by relatively low correlations among different behaviors, and a diverging set of psychological descriptors of those behaviors [23:272].
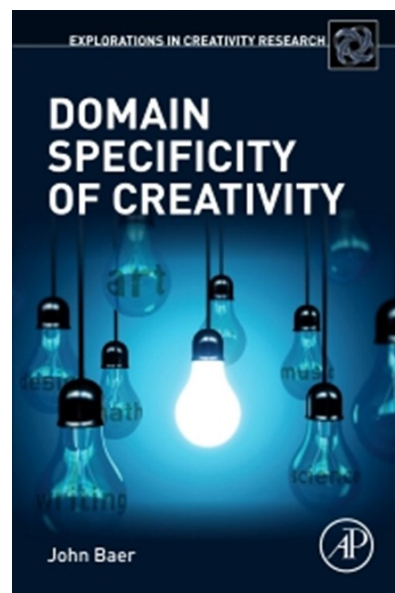
If creativity is a domain-general skill, then it should influence creativity on virtually any task one undertakes. Other things will of course be important (e.g., specialized domain skills, knowledge, and interest), and these will also influence the level of creative performance a person will exhibit in a given domain. But if creativity is domain-general and a person has enough domain knowledge to perform at some level in that domain, then people who are more creative than most other people in one domain should be (on average) more creative in other domains as well.

Domain generality of creativity therefore predicts positive correlations among the creativity ratings of artifacts produced by individuals in different domains. Domain specificity predicts the opposite: low or nonexistent levels of correlation among creative products produced by individuals in different domains. All that needs to be done, then, is to find out if people who are more creative in domain A tend, on average, also to be more creative in domains B, C, D, and E. That is, are there in fact 'high intercorrelations among different creative behaviors' [23:272] as domain generality predicts?

Evaluating creativity through the Consensual Assessment Technique

Assessment of creativity is tricky, but here is one method of creativity assessment that is well-suited to test the domain specificity question: the Consensual Assessment Technique (CAT), originally developed by Teresa Amabile[1,2] and further developed by others [24-26]. Because (a) it is based on evaluations by experts of actual creative performances or artifacts, and is therefore a measure of the actual creativity of those products, not just of things believed by some theorist to be related in some way to creativity, (b) it is not linked to or dependent for its validity on any particular theory of creativity, and (c) it uses essentially the same method for assessing creativity as is used in most domains in the 'real world,' the CAT has sometimes been called the 'Gold Standard' of creativity assessment [27]

The CAT asks experts to rate the creativity of products in a domain in the same way that, say, the Academy Awards ask experts in the field to rate movies, actors, and directors, or Nobel Prize committees in different fields rate the work of practitioners in their respective fields. The CAT is certainly not perfect (neither, one could argue, are the judgments of Academy Award and Nobel Prize Committees), but it is probably the best available method to assess real-world creativity.

The CAT is based on this idea that the best measure of the creativity of a work of art, a theory, or any other artifact is the combined assessment of experts in that field. Whether one is selecting a poem for a prestigious award or judging the creativity of a fifth grader's collage, one doesn't score it by following some checklist or applying a general creativity-assessment rubric. The best judgments of the creativity of such artifacts that can be produced – imperfect though these may be – are the combined opinions of experts in the field. That's what most prize committees do (which is why only the opinions of a few experts matter when choosing, say, the winner of the Fields Medal in mathematics – the opinions of the rest of us just don't count). The CAT uses essentially the same procedure the judge the creativity of more everyday creations [28:54-5].

Experts rate the creativity of a set of things people have created by comparing them to one another. The experts are given no other instruction because it is important that they use their own expert sense of what is creative in a domain. It is also important that they work independently of one another so that they cannot influence one another's judgments in any way (which would artificially inflate their levels of agreement). Despite working alone and without outside guidance, inter-rater reliabilities tend to be quite good, generally in the .80-.90 range[1, 2, 3, 13, 14, 15, 16, 21, 24, 28, 29]

Two issues regarding the CAT deserve special mention: the qualifications of those serving as judges, and the validity of the CAT in regard to judging paradigm-shifting work. Regarding the qualifications of judges, it is important to bear in mind that the CAT is grounded in judgments of what recognized experts believe is creative in their respective domains, and in fact most work using the CAT carefully delineates the expertise of the raters actually used in each study. (A single study may use multiple groups of raters because creations in more than one domain are involved.) There has also been much research focusing on the question of who qualifies as an expert in a domain, especially when judging the work of research subjects who are not highly skilled in the domain, such as when judging the writing of college students or even younger students. There have been studies comparing the ratings made by experts (e.g., in judging the creativity of poetry this might include groups of published poets and poetry critics, each making their creativity ratings independently; the number of such experts might range from 5 to 25, depending on the study, with larger numbers of experts preferable) and either novices (people with no special expertise; these are often college students because of their ready availability) or what might be termed 'quasi-experts' (e.g., high school English teachers or graduate students in English literature). In general, this research has shown that novice judgments do not match those of experts well at all; that ratings made by quasi-experts are somewhat correlated with those of experts, sometimes at a high enough level that they can be used as replacements for experts; and that these correlations vary across domains (e.g., novices come closer to expert judgments of short fiction than of poetry). What is consistently demonstrated, however, is that experts tend to agree with one another, even though their ratings are done entirely independently of one another, with coefficient alphas (a measure of inter-rater reliability) typically reaching 0.80 or higher for groups of judges[1, 2, 24, 26, 30, 31]

Regarding genius-level creative work, the CAT has not been used as a research tool to assess creativity at the highest level (what might be termed paradigm-shifting creativity[32] It is unknown how well such assessments might work at this level – one might expect that the CAT would break down for truly paradigm- shifting work because in a period of paradigm transition the very foundations (and standards) of a domain are in dispute – but this is not really relevant to the way the CAT is in fact used in research, which is always in judging the creativity of what creativity researchers call 'little-c creativity' (as opposed to 'Big-C creativity'[33]); In this research, the CAT has demonstrated exceptional reliability and validity[28].

CAT and CAT-like assessments of the creativity of subjects in diverse domains have been conducted, and the result is generally quite low inter-correlations among the creativity ratings of artifacts in different domains produced by the same subjects. This has been true of subjects of all ages from kindergarten through adulthood, and it has been true both in essentially random samples of subjects and with subjects who have evidenced considerable degrees of creativity in different domains. When variance attributable to math and verbal standardized test scores has been removed statistically, the inter-correlations hover around zero.

Domain specificity theorists have also discussed the existence of polymaths, people who excel (and are creative in) many different areas [34,35]. If creativity is domain-specific, one might ask, how could one person be so creative

in several domains? But this is something of a red herring, and in fact one might instead ask the opposite question: If creativity is domain-general, why are there so *few* polymaths?

The existence of polymaths, and their scarcity, can actually be explained rather easily under either theory; polymaths are certainly interesting, but they actually tell us nothing about the domain specificity or generality of creativity. Here's an analogy: someone can have a rich vocabulary and also be a fast runner, and yet these can remain distinct domains with distinct underlying abilities required for success. A person who is creative in two domains doesn't demonstrate that creativity is domain- general any more than a fast runner with a rich vocabulary demonstrates that running and vocabulary acquisition rely on the same basic abilities. Only if most fast runners had rich vocabularies (and most slow runners had poor vocabularies) would this demonstrate a linkage between the two abilities. If the two skills are unrelated, then one would expect some fast runners to have rich vocabularies and some to have poor vocabularies – which is exactly what we observe.

In the same way, if creativity is domain-specific, then one would *expect* some people to be highly creative in more than one domain (see end note 1). Domain specificity doesn't predict that people will be creative in only a single domain. It says only that the skills, knowledge, aptitudes, or talents underlying creativity in different domains are different, and for this reason creativity in one domain does not predict creativity in other domains. Assuming that such domain-based creativity-relevant talents are randomly distributed, one would *expect* that a few people would be creative in many domains, that some people would be creative in several domains, and some others would be creative in few domains or none, based on a normal distribution of unrelated abilities. So the presence of a few da Vincis does not disprove domain specificity. It is *exactly* what domain specificity predicts.

The scarcity of polymaths doesn't rule out domain generality either. It is true that most genius-level creators are not extremely creative outside the one domain in which they show excellence, but this is easily explained by what psychologists call the 'ten year rule'[36], which argues that it takes many years of preparation before even the most talented people can reach the levels of knowledge and skill necessary to produce ground-breaking work in any domain. As Gruber and Davis wrote, 'Perhaps the single most reliable finding in our studies is that creative work takes a long time'[4:264] . These long years of intense preparation must be spent in 'deliberate practice and the development of expert performance' [37:233] . So if it takes ten years just to *prepare* one's self for the kind of paradigm-shifting creative work that may one day come to be called a work of genius, it should come as little surprise that few people manage to reach the highest levels of creative accomplishment in several fields in a single lifetime. Even if creativity were domain- general, polymaths – at least at the level of genius – would be rare.

The theory of domain specificity argues that we should expect to find a few creative artists who are also creative musicians, and a few creative teachers who are also creative poets; we just shouldn't expect to find a general correlation between the two skills [34,35].The existence of polymaths does nothing to disprove domain specificity. Similarly, the many geniuses who failed to find even modest success in other fields do not disprove domain generality, because most geniuses commit to one field and are simply unable to give as much attention and effort and time to any other pursuit.

One area that has drawn intense interest is the possible relationship between creativity and mental illness. This is an area where the domain-general approach to creativity that was once widely accepted has misled researchers. Recorded observations that the incidence of mental illness was higher among creative people go back almost a century[38]. Research has shown that creative people tend to be both less sane and more sane than their less accomplished counterparts, which has led to very hard-to-resolve disputes and data interpretation[39].

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The problem, however, seems to be the domain-general nature of the questions that have been asked. In some fields, such as the arts, there is a positive correlation between creativity and mental illness. In contrast, creators in other domains, such as the sciences, may show no mental illness-creativity connection. Even within larger domains (like the arts) where the evidence generally points in a single direction, there may be very distinct micro-domain differences. For example, a fairly consistent finding in creativity research has been the tendency of poets – and especially female poets – to suffer from mental illness, more so than their counterparts in other fields of writing, and far more than highly creative people in the sciences. It should be noted that this is true of genius-level writers, not necessarily of writers in general. But among this rarified group of extremely creative people, there are reliable differences in the rates of mental illness, based on the field of accomplishment [40-42]. As Simonton wrote, 'the rate and intensity of adulthood symptoms vary according to the particular domains in which creative genius is expressed. ... geniuses in the natural sciences tend to be more mentally healthy than in the social sciences; geniuses in the social sciences, more so than those in the humanities; and geniuses in the humanities, more so than those in the arts' [39:226-28].

Because researchers were for so many years looking for large-scale, domain-general answers to the genius-madness question, a great deal of excessive disputative heat was generated. Once researchers began asking more domain-specific questions, however, the answers they discovered brought clarity to a previously murky area of research. This has also been true in research about personality traits associated with genius. There are such traits, but they vary greatly depending on the domain.

How can we best understand what it means to say that creativity is domain- specific?

In thinking about creativity, the model most often used has been intelligence rather than the much more useful and appropriate model of expertise. That was once true of creativity theorists (until the domain specificity revolution), and it is still the most common way of thinking about creativity by those outside the field. People tend to think of themselves (and others) as generally creative (or generally not very creative). I won't argue here the merits and problems of intelligence testing (see Neisser et al.[43] for an excellent summary of what we know about intelligence and its assessment) beyond noting that the evidence from IQ testing makes it clear that there is a skill or set of skills that correlational evidence suggests must be at least moderately important in many domains. This means that there is *something* domain- general about intelligence, and speaking of a person as intelligent, without specifying a particular field in which that person is intelligent, therefore makes sense: it means that a person so identified has abilities of the kind measured by IQ tests that are significantly above average and that, on a wide range of tasks from diverse domains, the person is likely to do comparatively well on most of those tasks. There is no need to qualify such claims by naming the specific domains in which the person described is intelligent (although it is also true that most people have greater and lesser abilities in some areas than others). If someone is intelligent, then it is reasonable to assume that they will have abilities in quite a few unrelated areas.

Expertise, in contrast, is commonly thought of as being very domain-specific. Saying that someone is an expert makes little sense unless the domain is in some way specified. Even in referring to people who have expertise in several domains it still makes sense to specify those domains; without such specification, it would be impossible to understand what it means to call someone an expert. We don't normally say that anyone is simply an expert without at least implicitly limiting this to specific areas. (We all know people who believe themselves to be the world's foremost authority on everything, of course, but we all also know this cannot be true of anyone.) Expertise varies widely by domain. Knowing that someone is an expert in Italian wines does not lead us to assume that person will also be an expert in statistics, field hockey, or pre-Columbian pottery.

Thinking about creativity in the way we think about expertise would be both more accurate (because both are highly domain-specific – and to the extent they are not, much of what little shared variance there may be is probably largely attributable to differences in general intelligence and access to educational opportunities) and because thinking of creativity in this way will lead to more accurate assessment and better programs to nurture creativity.

A recent hierarchical model of creativity provides a comprehensive general framework. This APT Model (see end note 2) includes[5]:
- a few very general factors like intelligence that impact creative performance to some degree across many domains,
- a small number of general thematic areas that describe large domains like science or writing that share some creativity-relevant skills, and
- many more specific domains and micro-domains that require skills and expertise that matter for creative performance only in one or a few very constrained domains or micro-domains.

The first level is very general, and each subsequent level gets more and more domain- specific. There are some general factors that, although they are applicable across domains, nonetheless have very domain-specific manifestations. For example, one must be motivated to be creative, and intrinsic motivation (doing something simply because one finds it interesting or personally rewarding) has been shown to lead to much higher creativity than extrinsic motivation (doing something to earn a reward or to receive a good evaluation from others).

This is true across domains. But motivation is actually very domain-specific. One cannot simply take one's motivation to write and apply it somewhere else. (One cannot, e.g., turn one's love of writing into love of balancing one's checkbook, doing one's math homework, or working out at the gym – although it is possible to use writing as a reward for doing something else that one is not otherwise motivated to do.) Even within a general thematic area like writing, one may be very interested in some kinds of writing but find other kinds of writing sheer drudgery, and the likelihood that someone will find every task or challenge in every domain interesting or be motivated to do all varied those tasks is vanishingly slim. Doing something in any domain requires motivation of some sort, and intrinsic motivation is generally more conducive to creativity than extrinsic motivation, but motivation is not fungible. It is very domain-specific.

What does the domain specificity of creativity means for creativity training?

If creativity were domain-general, then whatever creativity-relevant skills one might have should positively influence creative performance in all domains. And if creativity training improved one's creativity in one area, it would improve one's creativity in all areas (just as domain-general intelligence – what psychologists call *g* – is expected to influence intellectual performance across all domains, so if one had a way of increasing a student's *g*, one would presumably increase that student's intellectual skills and performance across domains). One would still need to know a great deal about music to write a symphony, and one would need to know very different kinds of things to write a sonnet or create a soufflé. But just as *g* claims to influence performance in math, writing, and many other areas, domain-general creative thinking skills, if they existed, would influence creative performance across domains.

The most common exercises used to promote creativity are those aimed at divergent thinking skill. Divergent thinking is the ability to come up with many different and unusual ideas in response to an open-ended question or prompt. If creativity were domain-general and a teacher wanted to have students do a number of divergent thinking exercises to increase their creative thinking skill, the content of those exercises really wouldn't matter. It would not matter at all whether one practised by brainstorming unusual uses for a brick, words that rhyme with June, or things that taste like chicken. The effect would be the same – an increase in divergent thinking skill that would be equally applicable in any domain.

Unfortunately, creativity doesn't work that way. Just as to increase our muscle strength in general we have to do lots of different kinds of exercises that focus on different groups of muscles, to increase our creative thinking skills we need to do lots of different kinds of exercises in different content domains to increase a wide range of divergent thinking skills.

Because the content of the divergent thinking exercises matters, training that employs divergent thinking exercises with just one type of content would be expected to improve creative performance *only in that domain* – and in fact, this is exactly what happened in an experiment designed to test just this proposition[16]. In that study, middle school students were led through a variety of poetry-relevant divergent thinking exercises. They later wrote both poems and short stories. Expert judges (fiction writers, poets and teachers of fiction- and poetry-writing) who were unaware which students had been trained judged the poems of the trained students to be significantly more creative than those of the untrained students, but the training had no observable effect on the creativity of the students' short stories.

If one's goal is to increase one's students' (or one's own) creative thinking abilities in a single domain, then doing a variety of different exercises in that domain makes most sense. For example, in the study focusing on poetry-writing creativity, the students did the following kinds of exercises (bear in mind these were middle school students with no special aptitude or interest in poetry):

- finding many words that sound like a given word (rhyme and assonance),
- finding many words that have the same initial sound as a given word (alliteration),
- finding words that could stand for or in some way represent a given thing or idea (metaphor), and
- inventing phrases or descriptions of things that are richly suggestive of other things (images).

If one's goal were to enhance creative thinking skills in another area, then different content would be appropriate. Suppose one wanted to improve divergent thinking skills in the area of graphic arts. Here are three kinds of skills that might contribute to creativity in this field that might be used as the basis for brainstorming exercises:

- thinking of interesting ways to make use of a particular graphic element,
- thinking of interesting ways to represent a given object or idea using different graphic elements, and
- using color and/or texture to suggest different moods or feelings.

If one wished to improve creative thinking skills in a variety of domains, then divergent-thinking exercises with a much wider range of content would be appropriate. Of course, divergent thinking skills are only one part of the domain-specific skills and knowledge one needs to be creative in a given domain. There is also much about the domain that must be learned, and many domains specific skills that must be acquired. The advice of teachers for millennia to learn from those who have preceded us – such as suggestions that one should read as much great writing as possible and practice many different kinds and styles of writing – will also be key to developing creativity as a writer. There are no shortcuts or one one-size-fits-all solutions to the creativity conundrum. Creativity is like expertise in many ways. It is very domain-specific, and it takes time – and often a great deal of hard work – to develop. But if it were easy, it wouldn't be nearly so interesting a subject, would it?

Acknowledgement

Endnotes

(1) The domain specificity of creativity implies that the skills, traits, or other attributes underlying creative performance are not systematically distributed (because if they were, this would imply linkages among these attributes that would lead to domain generality). To the extent that such attributes are randomly (i.e., not systematically) distributed, basic statistics would lead one to expect some people to have many of them, others to have some of them, and still others to have very few. Here's an analogy: If there were a thousand each of red, blue, green, and orange marbles that were randomly distributed among one hundred people, a few people might end up with no marbles of any color and a few other people might end up with several dozen marbles of every color. Most people would get some mix, which might be a modest number of marbles of all colors or lots of marbles of some colors and few of other colors. That's how randomness works. Domain specificity therefore predicts small numbers of polymaths. Domain generality, in contrast, leads one to expect much larger numbers of polymaths because anyone who is creative in one domain (and therefore possesses those domain-transcending attributes that lead to creativity in all domains) would be expected to show creativity in many domains (all those in which he worked). But that is not what one finds in the world, where polymaths are quite rare.

(2) APT stands, somewhat whimsically, for 'Amusement Park Theoretical' Model. The idea is that, just as there is a content-based hierarchy in amusement parks (e.g., at Disney World there are four different theme parks, each with its own focus; each park is further subdivided into more content-specific domains; and within domains there are specific rides or attractions), there is an analogous content-based hierarchy in creativity-relevant skills.

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Seeding and Cultivating Creative Practices in Teams

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> We must make our freedom by cutting holes in the fabric of this reality, by forging new realities which will, in turn, fashion us. Putting yourself in new situations constantly is the only way to ensure that you make your decisions unencumbered by the inertia of habit, custom, law, or prejudice—and it is up to you to create these situations.

We all need creativity

Creativity is a societal imperative of our time. It is reflected, both in individuals' desire to be and feel creative, as well as in the expectations of employers, government and education. There is increasing pressure to include creativity in higher education curricula and study programmes. There is however little agreement on what creativity actually is or how it can be fostered. While methods, techniques and procedural models to unleash the creative potential across domains and disciplines, such as those associated with the label "Design Thinking", are booming, it is unclear whether respective trainings have a lasting effect, if they are not backed up by a corresponding workplace and learning culture. Against this background we set out to reconceptualise creativity as an inherently socially situated phenomenon. As part an R&D-project called IdeaGarden we aimed to devise strategies for the individual and collective reflection and advancement of locally enacted creative knowledge practices. Our efforts have been based on the assumption that creativity can neither be reduced to the capacities of a solitary genius or a particular form of information processing but is essentially a form of social practice.
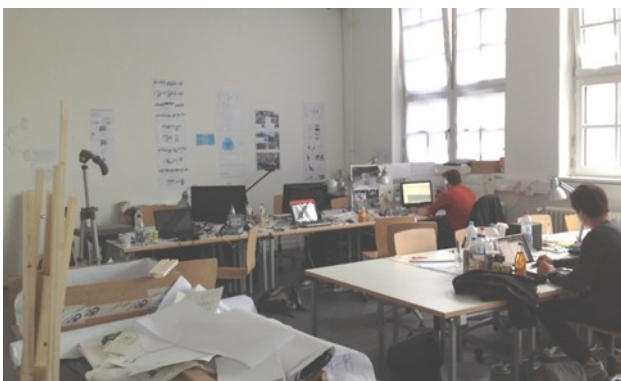
Figure 1: Students´ workroom at the Muthesius Academy of Fine Arts and Design, Germany

Creativity as social practice

The notion of social practice thereby refers to "an open-ended, spatially-temporally dispersed nexus of doings and sayings" that is organized by socially shared patterns of interaction and expectation. Social practices provide emergent conventions on how certain situations are to be understood within a group of actors as well as the forms of re-action that are deemed adequate and intelligible. They provide options for action and denote the bodies of knowledge considered relevant. Social practices however are not based on rigid rulebooks or irrefutable procedures but are playful and dynamic in the sense that competent action is less based on practitioners conforming to the rules and more on their ability "to act in a way that others in the game can understand". Whether a practitioner's move is recognised as legitimate and intelligible therefore cannot be assessed in advance but only becomes evident in the subsequent course of interactions and the responses of the other actors.

From this perspective, creativity can be understood as those modes of interaction with the world, in which individuals or collectives aim to cope productively with an otherwise indeterminate situation and bring forward new ideas. Creative practices, accordingly, refer to those collectively shared patterns of action and interpretation that orient the productive engagement with those situations that are experienced as uncertain, ambivalent or unsecure and hence are open to multiple forms of interpretation and interaction. Creative practices come into play, when we encounter the frontiers of the known and expected and have to engage with this very situation productively to figure out what it might entail and be about.

As a social practice, creativity cannot be ascribed to a person, a process, an artefact or an environmental feature, but constitutes a mode of interaction in which persons, processes and artifacts are entangled to reach beyond the realm of the previously known. Respective practices do not generalize but are always bound to the practical understandings and local conventions enacted by a particular group of actors at a particular point in time. Both the uncertainty of the situation, that calls for a creative engagement, as well as the result of this engagement and its assessment are situated. Insofar it does not matter, whether a research group solves a theoretical problem, a project team devises an innovative product, a group of students prepares a presentation or a lecturer conceives a new educational format. What only matters is the fact that they encountered an uncertain and doubtful situation in which their expectations failed.

In a series of comparative case study, we have shown that the creative practices of successful design teams and design students can entail quite different and mutually incommensurable rationalities and patterns of interaction. While in one case the empirical testing and iterative development of concurrent ideas might be a sensible approach, another design team might favour the subjective contestation of established cultural conventions and principles. Thus, respective differences in the way we engage with uncertainty are not marginal but point to fundamentally different conceptions of the world and how we can act in it.

Creativity cannot be reduced to a particular procedure or attitude rather, creativity refers to a multitude of different practices, that are (ideally) attuned to particular niches, in which practitioners act and which they co-create. Therefore, there cannot be a universal recipe or silver bullet to foster creative teamwork. Instead, each team or work group has to invent and develop those patterns of interaction and interpretation that work for them. Through their creative engagements in social practices individuals and teams learn the practices that work for them and in the process change themselves, what Ingold terms undergoing.

Figure 2 Visualizing the future: creative work scenarios (future workshop 2012, Denmark)

The micro-tactics of creative work

They have to find and create their practical niches in which they can develop and cultivate their (creative) practices. This perspective also implies that creativity as social practices cannot simply be reorganised or altered by means of deliberate intervention from the outside. As a social practice creativity defies instrumental control. Against this background we introduced the notion of »micro-tactics«. By micro-tactics we refer to the repertoire of collectively intelligible moves that are available to the members of a particular team or group.

Similar to tactics in sports like soccer, micro-tactics denote the intelligible options for concerted interaction. They are neither a strategy nor a method. They do not subsume a situation under a certain regime nor do they prescribe a particular proceeding rather, they indicate options for interaction through which the actors respond to the particular course of events and open up new avenues to be pursued. In some sense micro-tactics are the polar opposite of an intervention from the outside. They do not aim to control a situation and reduce its uncertainty but provide means to flexibly and adaptively respond to changing conditions. They do not entail fixed expectations about how things will develop but call upon the fellow players' willingness to deal with whatever emerges through collective action.

Figure 3 Micro-tactics represented as a deck of cards.

The *micro-tactics of creative teamwork*, that we have synthesized and described, are based on the analysis of case studies at LEGO® Future Lab in Denmark (Billund), the design agency EOOS in Austria (Vienna), and the Muthesius University of Fine Arts and Design in Germany (Kiel), carried out over a period of three years. Irrespective of the different creative practices and rationalities enacted in these institutions, we found recurrent patterns of collaborative interaction that hold across all of them. The patterns of collaborative interaction we spotted, add to and refine the "moments of creative interaction" that have been previously described in the literature on creative teamwork.

We grouped the micro-tactics we identified into five categories (Figure 3). Each of the categories delineates a generic set of situations, in which creative teamwork can be nurtured: (1) help seeking (2) help giving (3) lateral awareness (4) reflective reframing and (5) cherishing diversity.

Developing awareness in the use of micro-tactics

To provide practitioners and students with a more engaging introduction to the micro-tactics, we created a new artefact - a deck of cards. With this format we draw attention to the game-like nature of social practices that are well illustrated in sports like soccer. The card desk provides an easy to use cognitive tool to provoke reflection regarding the collaborative moves we are constantly making and to provide inspiration for alternative moves we might want to try out and see where they will take us.

The deck of cards ships without an instruction or user guide, as we believe that each individual and each team has to figure out for him/her/themselves how to make best use of it. This is because the micro-tactics are a not a method that can be taught in a standardized way, rather they are intended as catalysts for individual and collective imaginations to see the possibilities afforded in a form of interaction and collaboration that could support their creative endeavors.

If we understand creativity in the work environment as a social practice, there will be no silver bullet as to how to do it, rather their will be a continuous striving for more fruitful and supportive forms of interaction and inter-relationship with each other and the projects they share. The micro-tactics neither provide a fixed set of rules nor do they prescribe any patterns of interaction and interpretation we bring to bear when facing the uncertain. Instead, the micro-tactics might provide hints or ideas for new moves that others can build upon. They can also provide a shared frame of reference among participants to explicate and negotiate the kind of moves they might enact.

The micro-tactics are an invitation for all those that are interested to reconsider their work and learning practices and those that want to explore into new forms of collaboration. The deck of cards with the micro-tactics is available under a CC-BY 2.0 DE at: http://ukzizm-s06.izm.uni-kiel.de/microtactics/.

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As pointed out by Ehn (1988, p. 146), games in this sense are not just fun but even more importantly such as the games of children "they are most concernful activities".
See for example: Queenan, C. (2012). *'Micro Tactics': How Will the Newest Tactical Evolution Change the Game?* Online at: http://bleacherreport.com/articles/1013020.

Exploring ecologies of learning and learning to practise in the therapeutic arts & creative arts therapies

Norman Jackson

Introduction

A lot of my learning projects happen because I am invited to do something, like give a talk or write a chapter for a book, and I am forced to focus on a subject I have not attended to before. Such invitations provide important opportunities for me to apply, test, adapt and develop my ideas as they provide a new context in which they can be publicly aired, and more importantly, they enable me to form relationships and interact with people I have not interacted with before. Eighteen months ago I was invited by Clive Holmwood and Judie Taylor to contribute a chapter to a book they were editing on the theme of 'Learning as a Creative and Developmental Process in Higher Education: A Therapeutic Arts approach and its wider application.'[1]

I knew next to nothing about this discipline but I was keen to apply and gain feedback on my ideas on learning ecologies[2-5]. In writing the chapter the editors generously provided me with access to other chapters that were being written and I was able to draw on these and inform my own thinking. But none of the chapters directly engaged with practice in the field of therapeutic arts or creative arts therapies. I suggested to the editors that it would be worth exploring the idea of ecologies of learning and practice with people who were involved in practice. They put me in touch with Rebecca Morley and Phillipa Buchanan at 'Inspirative Arts' and this sparked a productive collaboration that is reported in the accompanying article. In this article I set the scene by introducing the idea of learning ecologies in the field of therapeutic creative arts higher education.

The nature of the discipline

People who engage in professional practices, like doctors, lawyers or engineers develop themselves to see and appreciate the world in particular ways, and develop their awareness, cognitive and practical skills and creativity to comprehend and engage with problems and opportunities in particular ways. Therapeutic Arts / Creative Arts Therapies practices encourage and facilitate relationships and interactions between knowledgeable and skillful practitioners and their clients as unique individuals, using artistic forms of practice and creative expression like writing, painting, dance, drama or music as therapeutic tools[6].

General principles of education in therapeutic arts have wide applicability. They include[7]
- valuing creativity – the therapeutic arts engage the imagination and involvement in the arts as a process and means of expression not just the production of a creative end product
- developing a sense of wider social responsibility
- gaining an empathic understanding of others' perspectives and building facilitative relationships with others
- valuing intrapersonal development so the student becomes aware of their own values
- the importance of embodiment and awareness of other senses in learning

The development of such qualities and attributes are valuable for many roles in life but for those learners who are preparing themselves for practice in the professional field they need also to develop awareness and capability to create their own ecologies of practice[5]. In creating and implementing an ecology practice, the therapeutic arts practitioner is utilising the affordances, contexts, tools, resources, spaces, relationships and activities of the disciplinary domain to engage their client in a therapeutic process in order to help them gain deeper self-awareness, construct personal meanings, improve their wellbeing and psychological health in a generic context using the healthy aspects of the arts and their inherent therapeutic values. Arts Therapists create similar ecologies of practice but also do significant work on 'self' in order to engage in deeper clinical therapy (as opposed to therapeutic) level using the arts[8].

At the core of all therapeutic arts practices is the belief that art making benefits the therapeutic process of expression, transformation, and improved self-awareness. A skilled therapeutic arts practitioner helps people to find meaning and intention in both the process and the results of the artistic 'making' process[9].

If we view creativity as an emergent property of interactions between a person, their projects (like developing and facilitating a therapeutic relationship with a client) and their utilization of resources, tools, spaces, contexts through processes and activities they create then the affordances for creativity are everywhere, and creativity can emerge at any time. But the primary focus within all creative expressive therapies, including the arts therapies, must be in the relationships and interactions with their client[10]. Specifically, arts therapists, after completing a Master's degree and having worked significantly on themselves acknowledge that:

the creative process in psychotherapy has basically two elements. For the first part, it's about how the therapist creatively engages with and creatively gets a felt sense of the client's way of being in the world with "loving curiosity". For the second part, it's about "revolutionary moulding", which is about identifying "with the most radical aspects of his client's personality, the part of him which is asking for permission to experiment with novel or truly startling ways of experiencing himself" (Zinkler 1978:22[10]).

Creative Arts therapists specifically use forms of artistic activity and making to engage their client in 'novel ways of experiencing himself' and understanding art making as the third entity (practitioner + client + art making) in the therapeutic relationship, as described by Kramer[11], points to a system of interaction and co-created meaning making, rather than simply the imposition of shared knowledge and skills on clients. Such a system, becomes a unique interpretation and synthesis applied to particular people, in particular situations and circumstances of psychotherapy, art making and the therapeutic relationship[9].

Drawing on the ecological ideas outlined by Jackson, the system to which Kramer[11] refers, can be represented as an ecology of practice for professionals working in the fields of arts therapies and therapeutic arts practice (Figure 1).

It is important to acknowledge that while the broad approaches used in these closely related fields of practice might be similar there are important differences in professional practice (J. Taylor personal communication). While both draw on similar skills and values (i.e. working in a facilitative way with others, valuing the expressive potential of the arts and using the tools of the arts to enable clients to express and represent themselves, listening with empathy) the therapist will engage with clients at a deeper (clinical/psychological) level. They will conduct clinical assessments of their client and this informs their interventions as a therapist to promote healing and change. They are also subject to professional codes of conduct and registration and CPD requirements that therapeutic arts facilitators are not subject to. The therapist works within a contractual frame where the client is engaging in therapy with its various boundaries and expectations while the therapeutic arts facilitator also sees value in using the arts to promote wellbeing, interaction, confidence, engagement, they do not conduct client assessments and the contractual frame for them is to work within their remit and not go beyond their level of expertise and stray into working too deeply as a therapist.

Figure 1 General framework for interpreting an ecology of practice in the fields of arts therapies and therapeutic arts (adapted from Jackson[2]). The framework or model shows key relationships and interactions between the person and their environment. The ecological framework is a heuristic to help us imagine some of the complexity involved in acts like learning and making. The labels explain an aspect of the ecology but do not say how they interact. This is revealed in narratives of actions and activities. The components of the ecology do not stand in isolation. They can and do connect, interfere and become incorporated into each other.

4 RESOURCES
knowledge, materials, tools and other artefacts used in art making and the new artefacts that are made

5 SPACES
physical (maker spaces) social, virtual, intellectual, psychological, liminal therapeutic or clinical

3 AFFORDANCES
possibilities for action in therapeutic situations and the making of artistic artefacts and/or performances

PASTS

PRACTITIONER
relating to and interacting with my client and our environment through the therapeutic journey
CLIENT   ENVIRONMENT

FUTURES

6 RELATIONSHIPS
with client(s), with themselves and their past and current experiences, with the materials and the process of making artistic artefacts

2 CONTEXTS
the therapeutic or clinical context, other contexts eg particular situations / circumstances of individuals involved particular artistic contexts eg drama, music, art

7 PROCESSES
'making' artistic artefacts' therapeutic & clinical

1 PURPOSE
& motivations to help the client(s)

Across all the therapeutic arts field practitioners create ecologies for their clients within which their clients are able to learn about themselves, express themselves creatively and improve their personal wellbeing and or their mental health through the process of making artistic artefacts or performances. This is particularly pertinent in the arts therapies where students are expecting to undergo personal therapy alongside their training. This is not expected at undergraduate level where students are not training to be therapists nor are they expected to undergo therapy. Within this whole ecology all practitioners develop therapeutic relationships with their client who themselves have lived through many ecological stories that make up their past life.

Through this ecology the practitioner and client develop a relationship and interact with each other and their physical environment and the physical and psychological spaces they share, containing the affordances (opportunities for action), and resources (knowledge, materials and tools) necessary for action. In this ecological relationship the practitioner skillfully engages her client(s) in an artistic making processes connected to the intellectual, psychological and emotional world of the client, and helps them construct personal meanings through their process of making. The therapeutic journey connecting past with future is facilitated through the making of artifacts or artistic performances and the relationships, interactions and the making or remaking of meanings that occur through the experience.

Apprenticeships in the therapeutic arts pedagogical practices

To become a practitioner in any professional field a learner must serve both a *cognitive apprenticeship* and a *practical apprenticeship* in which activities and tasks are undertaken in authentic contexts and settings[12]. Cognitive apprenticeship, "learning through guided experience on cognitive and metacognitive [levels], rather than physical, skills and processes" [13:456], enables learners to develop the knowledge and ability to perceive, imagine and reason. In the context of this book, they develop themselves *to think and act like* a practitioner in the therapeutic arts. The practical apprenticeship enables the novice learner to develop and apply the skills they need in order *to practise* as an arts therapist in actual practice settings.

The cognitive apprenticeship model is most directly related to situated cognition. In situated approaches learners collaborate with one another and their teacher to co-create shared understanding of problems and situations. Teachers who engage learners in such approaches believe that they can process concepts and information, and develop solutions to problems, more thoroughly and more usefully when multiple perspectives, beliefs or possible solutions are shared within a group.

Cognitive apprenticeship requires making explicit the thinking, behaviours and processes of practitioners visible to novice learners, so that they can observe practices and reflect on them[13]. They involve guided participation which ideally involve the learner in working in their zone of proximal development (ZPD) [14], conceptually this is the area of practice that is just beyond their current ability level.

The idea of cognitive apprenticeship is closely linked to the *signature pedagogies* used by teachers: the 'types of teaching that organize the fundamental ways of educating future practitioners, and are used to transfer skills of how *to think, to perform* and *to act* with integrity in their professional work' [15-17] Through their signature pedagogies teachers create *signature learning experiences* that enable students to learn to 'inhabit' environments that are identical or close to the environments they will encounter in their future practice world. They enable learners to develop the perceptual awareness they will need to interpret and act in the work environment in the way a practitioner would. This is why work-placements are so important in higher education courses that have a strong vocational orientation.

We can interpret signature learning experiences through the frame of an ecology for learning that enables learners to relate to and interact with the whole environment in which they are situated (Figure 2). Such a perspective enables us to link the worlds of learners engaged in cognitive apprenticeship in a higher education environment to the practice world outside higher education for which they are preparing.

A higher education programme, taught within a university or college, provides students with a purpose which they must make their own, a set of contexts and circumstances for learning and development, environments containing spaces, resources, people, and pro-grammed activities and experiences, within which the student is provided with, or discovers for themselves, affordances for learning, developing and achieving. Contained within these affordances are the opportunities for creative action and expression, for example Bennett[18] suggests that 'Engaging in the arts is seen as a primary mode of inquiry combining creative imagination with embodied experience', and 'While utilising the arts individuals engage in experimenta-tion, risk-taking, discovery and meaning-making. Inter-subjective relational qualities of understanding, support, listening, and empathy become integral parts of the expressive arts learning.'

Figure 2 An ecological perspective on signature pedagogies and signature learning experiences in therapeutic arts higher education. The framework or model shows key relationships and interactions between the person and their environment. The ecological framework is a heuristic to help us imagine some of the complexity involved in acts like learning and making. The labels explain an aspect of the ecology but do not say how they interact. This is revealed in narratives of actions and activities. The components of the ecology do not stand in isolation. They can and do connect, interfere and become incorporated into each other.
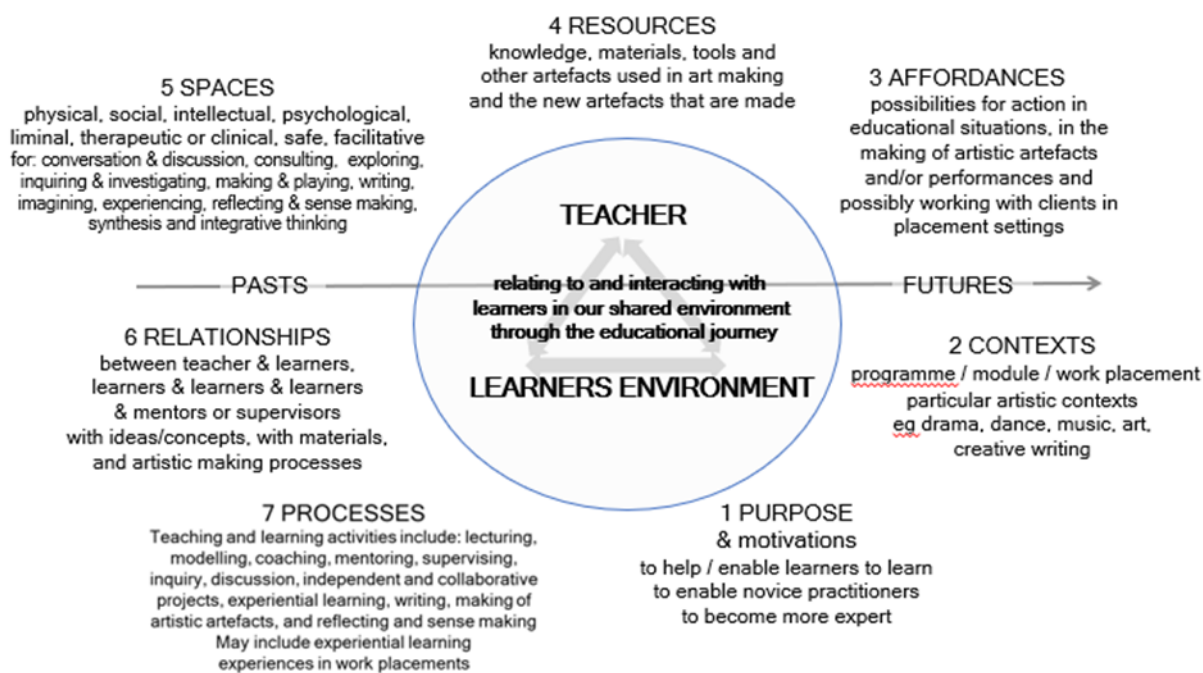
Ricketts[10] acknowledges the way in which learners bring their past history into new learning situations in their ever unfolding present and recognises that this can both inhibit and extend learning and personal development. The students arrive already shaped by their own lived experience of education and life history that often makes the transition into a more experiential process of learning challenging with a noticeable increase in levels of anxiety and wanting or even demanding more structure and guidance.

When learners join a higher education programme, they are voluntarily putting themselves into a liminal state and space with all the uncertainty and anxiety that entails. At the largest scale the whole higher education experience can be viewed as a liminal space.

[the higher education] student status is also a liminal status…..it is an institutionalised status that is explicitly betwixt and between two other statuses. It is bounded by time, as well as by prescribed criteria of entrance and exit. It is also inherently a temporary status[19].

But these liminal spaces and states occur repeatedly throughout a learner's higher education experience both on and off the campus. By participating in a programme in the therapeutic arts or Arts Therapies fields, learners are provided with opportunities to undertake a journey through which they develop and learn to use field-relevant knowledge and skills in domain-relevant contexts and situations, some of which are located in class-rooms and some of which might be located in real or close to real practice settings (for example on a domain relevant work placement).

> At both undergraduate and postgraduate level learning [in the therapeutic arts] has to be contextual whist allowing students to abstract meaning. Learning must involve relating parts of the subject matter to each other, and to the real world. Allowing their understanding of their specific art form be it drama, dance, art or music to connect to the wider general context of health and social care. Undergraduates in their final year, 10 week placement use their art form in a variety of health and education based settings such as schools or in a wider range of voluntary health and social care settings. Allowing them to integrate their art form, their thinking and practice within the wider contextual real world frame, where they will need to adapt and improvise within the workplace, as they will need to in their wider graduate career.[20]

Such placements provide affordances for developing contextual and circumstantial awareness and applying what has been learnt in the classroom in an appropriate, pragmatic and situated way. They also provide opportunities for learners acting as novice practitioners to be guided as they participate in the practices of their professional field, by more experienced and expert practitioners.

While teachers pedagogically construct the journey, it is lived and experienced in a unique way by each uniquely evolving learner. What constitutes a difficult liminal space for one student may not be so challenging for another. The journey is rich in affordances for new experiences, exploration and inquiry, relationships and interactions of subjects, self, spaces, objects and tools, and the social/cultural world created in the learners' educational and wider non-formal and informal contexts. Ricketts[10] captures this in his descriptions of students' learning journeys.

> From a reflexive, reflective perspective, therefore, our students shape and are indeed shaped by variety of discursive practices of experiential group process, essays, case studies, supervision, personal therapy, facilitations, presentations and their final year independent study or body of work which comprises of a live performance, written critique and viva contribute to their creation of their personal/professional self.

Through this journey of encountering and transiting liminal spaces, extending over a significant period of time and involving a multitude of pedagogically constructed activities, and experiences in both formal (structured) and informal (unstructured) environments, the learner has much to think about, make sense of and learn from. Reflection and the utilisation of deeper understandings in future practices is central to becoming an effective self-sustaining practitioner.

> All arts therapists need to be ready to develop a life time of reflective practice, this must be harnessed and developed early in their training. This threshold, this, 'opening up a new and previously inaccessible way of thinking about something' is essential[19].

Through purposeful reflection on significant experiences, learners evolve into more experienced, knowledgeable and capable people, more aware of themselves and how they are able to interact with the world their perceptions have constructed and work with uncertainty and complexity in ways that are consistent with their practice field. Ricketts[10] describes this process of personal transformation in terms of 'configuring or reconfiguring self' as part of a profound transformational process that students go through 'as they experience uncertainty and not knowing.'

From a learning ecology perspective we might interpret learning journeys as one in which each learner becomes increasingly conscious of themselves and their environment, and the ways and means they must think and behave in order to interact with their environment in ways that are relevant to the domain specific tasks, problems and situations they imagine and encounter. Each learner is following their own unique trajectory towards being able to act autonomously, in a self-directing, self-regulating, self-reflecting and self-sustaining way in the specialised fields of knowledge and practice (purposeful human interaction) they have chosen.

Higher education programmes are usually structured so that towards the end of their programme students can create their own ecologies for learning, developing and achieving, by incorporating opportunities for them to conceive (imagine), design, implement and present the results of, their own significant learning (research) project. Through this rich, complex, self-managed experience they are able to learn many things about themselves especially if they incorporate elements of reflection (both formal and informal).

Bird et al[21] describe project-based modules in the final year of the Creative Expressive Therapies undergraduate programme and post-graduate Art Therapy, Dramatherapy and Dance and Movement Psychotherapy programmes at the University of Derby. All the programmes place creativity, art-making and performance at the heart of their pedagogic philosophy and practice and share a focus upon the therapeutic use of creativity and the therapeutic use of self which means that the relationship between the facilitator, or therapist, and the client becomes a key method of enabling change and insight. The module is also framed within a project for scholarly inquiry, 'understanding .. the role of the therapeutic use of creativity and self is enhanced by embedding both into the process of independent scholarship'. The examples provided by these authors illustrate well how learners reach a high level of conscious competency to create their own ecologies for learning that facilitate open inquiry and exploration through the making of artistic artefacts and using them to leverage deep thinking and emotions, and imagine multiple perspectives – client, therapist, researcher, artist. Through these illustrations we can better appreciate the form creativity takes and emerges in the course of practice in this field.

Such complex ways of thinking, behaving and being and relating to and interacting with clients and their environment are essential to performing a professional role in the therapeutic arts & creative arts therapies fields of practice. In a companion article three practitioners explore the meaning and develop the idea of ecologies of practice in these fields.

Acknowledgements

Image credits
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Applying the Idea of Ecologies of Practice in Arts Therapies & Creative Expressive Arts for Wellbeing

Rebecca Morley, Philippa Buchanan and Rosie Smith

Rebecca graduated from the University of Derby with her MA in Dramatherapy following her BA Honours in Performance and Professional Practice. Since 2015 she has been working for Inspirative Arts in the capacity of both a dramatherapist and as our client-coordinator. Several years of experience working in a variety of care settings has provided Rebecca with a good understanding of the differing needs of the clients she works with. She is passionate about promoting the benefits of different art forms used in therapy and how these can provide us with transferrable skills that support us through the challenges life presents.

Philippa spent many years managing community, voluntary and public-sector development before taking a career break to explore her creativity: gaining a first-class honours degree in Creative Expressive Therapies, specialising in drama. This degree combined Philippa's life-long passions: creative arts, working with people, and social change. Philippa spearheads organisational development for Inspirative Arts and is currently working towards MSc Health and Social Care. She holds a PGCE in Inter-Professional Practice Education and leads our sister organisation, Inspirative Development, providing creative, participatory training for professionals in the educational, health and social care sectors.

Rosie graduated from Derby University in 2016 with first class BA Hons Creative Expressive Therapies. Rosie has worked creatively for a number of years particularly using music, drama and dance with children, adults with disabilities and in schools and hospitals/hospices. Starting as a volunteer at Inspirative Arts, Rosie has gained a number of qualifications within autism awareness, activity provision and working creatively internationally and is now a Creative Expressive Specialist. Rosie facilitates lively and playful groups using sensory, musical and storytelling elements.

Introduction

Inspirative Arts Derby Community Interest Company (CIC) http://www.inspirativearts.co.uk/ is a social enterprise based in Derby City Centre. Since 2009 we have been developing and delivering high quality wellbeing and therapy services for vulnerable people and the people who care for them.

Inspirative Arts do not work with a client group per se: our services are open to everyone who feel the arts can support their wellbeing.

The Inspirative vision is of a world where everyone is valued equally; with every person's voice heard, issues understood, and needs met in a creative, person-centred way. Our mission is to use the transformative power of creative expressive arts to nurture recovery, resilience and well-being for vulnerable people. Our values (box 1, right) inform all our decision-making and underpin the services we offer.

Our work is person-centred. The way we interact with and support each client is unique: tailored to suit each person's needs, with personalised plans established through collaborative exploration and consultation. Clients and facilitators co-create a contract which states the outcomes, terms and conditions of each agreed intervention. Services include arts psychotherapies, (including dramatherapy, art therapy, music therapy or dance movement psychotherapy) and creative expressive wellbeing sessions; delivered at different levels, allied to the Kaiser / Chronic Care Model (Figures 1 & 2). Acceptance into our services is subject to a clinical assessment. Clients are offered the level of provision which we and they agree will best suit their needs.

> **OUR VALUES**
>
> Caring
> Empowering
> Expressive
> Inspiring
> Nurturing
> Honest
> Innovative
> Sustaining
> Open
> Connected
> Reflective
> Creative

Figure 1 Inspirative Model

Arts Therapies

Arts based psychotherapies use non-verbal, verbal and creative means of expression and exploration. In all modalities, the meeting of therapist, individual or group is "mediated through the art form" [1:192] Therapy sessions are facilitated by fully qualified, HCPC or UKCP registered arts psychotherapists, holding master's degrees in their specific discipline. These services support and enable people to process current or past trauma, beginning or enhancing the journey back to well-being. Our therapists tailor techniques to enable each client to explore their issues. Sessions provide people with a safe, contained place to explore and express emotions. This aids recovery, equips people with life skills, and builds personal resilience. Clients recover their self-esteem, confidence, independence and awareness of self and others.

Figure 2 Kaiser Triangle
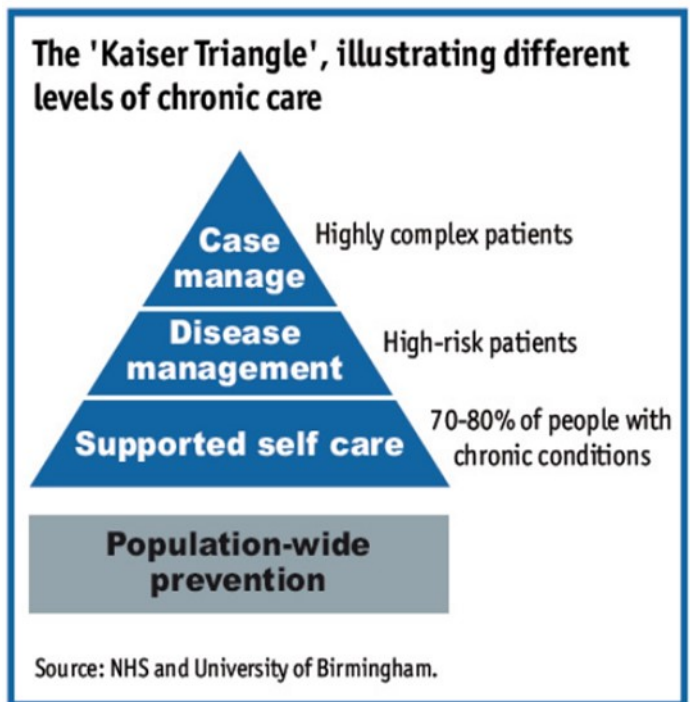
Wellbeing Services

Creative expressive wellbeing sessions are facilitated by fully qualified Creative Expressive specialists, holding BA (Hons) Creative Expressive Therapies (or equivalent). Sessions are delivered either one to one, in a group, or with one to one support within a group; tailored to suit the needs and abilities of clients. Using the Creative Expressive Model[2], our wellbeing sessions focus on building on healthy aspects of self: creating safe space for artistic expression and communication; nurturing self-esteem, building a sense of belonging, and maintaining well-being. Our facilitators use a mix of art forms - art, music, dance, drama and play - specifically tailored to the engagement styles of clients.

You can see examples of both our therapy and wellbeing work here:

https://www.youtube.com/watch?v=6HZPajjeVA8&feature=youtu.be

Applying the idea of ecologies of practice to our work

Not many organisations offer this mix of therapy and wellbeing work – most specialise in either one modality or the other; thus, we recognise that some might find it difficult to distinguish between our services. It is vital our staff, other professionals, and most importantly, our clients, understand the different theoretical frames, approaches and intents underpinning each level of work. We have used a variety of tools to map aspects of our interventions over the years, seeking a clear overview of similarities and differences, enhancing understanding and informing safe, ethical practice. The idea of ecologies of practice[3] (Figure 3) sparked our curiosity. We wondered whether using this model to identify specific ecologies within each service might enable us to further differentiate our work.

Figure 3 The framework proposed by Jackson[3] to represent the features of an ecology of practice. The basic framework can be adapted to any practice context. Where human interaction is the primary focus, as in our practice the central proposition becomes the relationship and interactions between practitioner- client(s) – environment[4]
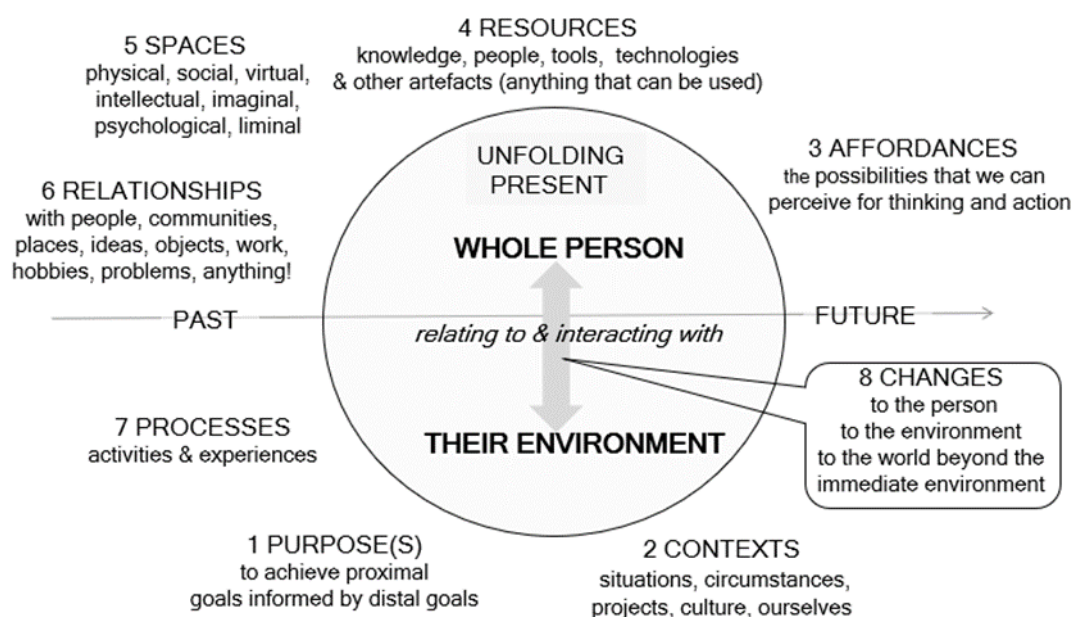
We first used the framework to create a working map of how each generic component of our two modes of service (arts therapies and arts for wellbeing) might be interpreted (Table 1). Whilst this mapped our respective territories so to speak, it did not truly capture specific nuances derived from the person-centred essence of our work.

Table 1 Example of mapping our practices using the dimensions of the ecology of practice framework. This example is for the Creative Expressive Therapies

Purpose	Contexts	Affordances	Resources	Spaces	Relationships	Processes
• Developing communication skills • Improving wellbeing and happiness • Enhancing confidence and self-esteem • Engaging in meaningful creative activity • Increasing social skills • Participating in intensive interaction • Promoting identity and awareness in relation to self, others and the environment	People who have progressed through education / college etc and are not perhaps in a position to move forward autonomously. People who are perhaps feeling stuck or unable to identify where their future lies. People who are trying to establish and maintain an identity & understand the implications of their disabilities and/or experiences. People who are isolated or experiencing stigma seeking a safe space to be themselves.	Possible interventions and therapeutic processes which include creative therapeutic tools such as storytelling, enactment, embodiment, movement, art-based expression, use of role play, metaphor and objects. In implementing a safe, confidential space (either group or 1-1), the actions become possible and therefore the process can develop. There is a difference in intention between CET & Therapy - this links to the purpose & context of referral - this then links to the depth of work done - we liken this to the deep digging and delicate approach an archaeologist might undertake, excavating into a person's past experiences, helping to piece things together and make sense of it in the light of current strengths and knowledge.	Reflective practice - reading, research, exploring case histories, to inform the planning, delivery, evaluation cycle and ensuring clients needs are met to the best of our abilities. Peer & supervisory support. Physical resources - art materials, dramatic texts, puppets, instruments, music etc. Therapists are likely to have a greater depth and breadth of previous exposure to research due to their higher academic study. however this is something practitioners and trainee practitioners should strive towards across both disciplines.	Physically & psychologically safe facilitation space for either groups or one to one sessions. Liminal space born out of creative possibilities, accessing sub & unconscious understanding & knowledge of self - engaging both left and right brain hemispheres through creative and verbal interactions. Safe supervisory space for facilitators enabling reflection on experiences and exploration of inter and intrapersonal dynamics (projection, transference, introjection etc) NB, clinical supervision is only mandatory for therapists, however we believe it is good practice for CET facilitators, teaching staff and trainee practitioners to access supported reflective practice sessions.	The client / facilitator therapeutic partnership - within CET the client may be used to working with a team of facilitators. Within the therapy services, clients will have one consistent staff member that usually delivers a consistent session time and day. Peer relationships between staff Peer relationships between clients in group settings Supervisory relationships Relationship with artistic content - using metaphor & representation to explore self and experience.	Using the process of artistic engagement to explore and develop healthy aspects of self, building efficacy for future life.

A Case History Approach

In the second stage of exploring the idea we used the ecology of practice framework to map dimensions of interaction between practitioner, client and environment using two case studies drawn from the different areas of our work:

Wellbeing Client

Callum* has been accessing our wellbeing services for approximately four years, during which time he has transitioned from school into college provision, then adult services. Callum has profound and multiple disabilities and other health concerns, including epilepsy, autistic spectrum disorder and learning disabilities. His verbal, cognitive and social skills are very limited. Callum initially had one to one creative sessions in his own home, but now attends a Creative Expressive Wellbeing Group with four other clients, using tailored one to one support within the group to maximise his engagement and meet his care needs. This mixed ability group uses a wide range of music, art, drama, dance and playfulness to bring clients together, enhance social interactions, enable freedom of expression and nurture personal growth.

Callum has worked with a number of different creative wellbeing facilitators during his time with us, with his journey being safely held by a lead practitioner who has nurtured our partnership with both Callum and his circle of support. Callum's family feel his continued engagement with our services has provided security and familiarity during times of significant change in other areas of his life. We have seen him grow in confidence during one to one interactions and develop further within our group – building on his abilities to interact with others and communicate his wishes and needs.

A detailed account of how we used the ecology of practice model to explore Callum's journey with us is included in Box 2 (below). We took a similar approach when exploring our work with a therapy client.

Box 2: Using Ecology of Practice to Map a Wellbeing Client Journey

Calum first heard about Inspirative Arts at school at an event around transitioning from school into adult life. Calum has profound learning disabilities, limited verbal skills and can display challenging behaviours. Calum was offered an assessment meeting to help he and his family decide if Inspirative Arts would be best suited to support Calum's wellbeing throughout this transitional life period. Within this meeting the Inspirative Arts assessor learnt about the **context** within which they would be working including, Calum's support needs, the needs of his family, Calum's preferences and also Calum's goals and aspirations. From this, the assessor could see that the main **purpose** of Callum's sessions would be to maintain his wellbeing through a turbulent time, as well as to continue to build on Callum's self-expression and communication skills.

This **purpose** therefore informed the **process** within which the sessions would take place. From the assessment meeting it is clear that Callum's physical and emotional health is well, and there are no signs of trauma. We feel Callum will benefit from creative wellbeing services which are built upon the creative expressive model. Within sessions, Callum's existing wellbeing, self-expression and communication skills will be built upon and further developed to support his through a transitional time. This aligns with the creative expressive model which focuses on working with the healthy aspects of clients utilising creativity to develop these further, promoting improved/maintained wellbeing and personal development[2].

The next stage of the process will be planning the wellbeing session for Callum in a person-centred, risk assessed and creative way. The **affordances** will be considered here in terms of which modality of the arts to use and which additional techniques may be synthesised to create a completely person-centred and individually tailored session. In this case, dance/movement is selected; as this is something he already enjoys, aiding Callum in beginning to interact with his environment and experiment with his effects upon this, introducing different ways to express self. Storytelling is also utilised to help Callum understand the transitions that are about to take place in his life. Stories which are developmentally appropriate are selected as well as sensory items used to aid understanding through metaphor. Finally, in terms of communication, Intensive Interaction techniques are harnessed to enable the facilitator to better understand Callum and build a rapport and relationship in an enjoyable and accessible way[5]

These **affordances** will inform what **resources** are prepared and utilised. For instance, to engage in dance/movement, the facilitator may select music, a sound system and props. Storybooks and sensory items will be needed for story telling as well as pictures, balls, and musical instruments for intensive interaction. Other resources drawn upon after the session will be reflective practice, training (CPDs etc.), supervision and peer support.

Reflective practise involves the keeping of detailed client logs which inform session plans and approaches while also monitoring client progress towards outcomes and highlight any issues to be addressed. Logs are aligned with formal reflective/clinical models to ensure best practice and exemplary client care. Relevant theory is drawn upon and relevant research conducted based on these logs. In terms of the ecologies of practise model, there does not seem to be a relevant space in which to explore reflective practice, however reflective practise is the foundations of the creative expressive approach and person-centred, theory-supported, safe and ethical wellbeing sessions could not be carried out without this.

Within the session **space** becomes an important factor in a number of ways. For instance, the physical space (workshop room) must be held in a safe and boundaried way in order to be conducive to creativity and exploring emotional material[6]. This may be physical boundaries such as closing the door or may be less tangible boundaries such as group rules and contracts. If the physical space is safe, the liminal space can then be entered. This is the space between the present and future where transformation and learning can occur[7] through creativity and play alongside a facilitator. It is within this space that Callum's skills and wellbeing can be developed indirectly in a safe and non-threatening way.

When in this liminal space the **relationship** between facilitator and client is highlighted and the facilitator's role is to hold the **space** safely and enable the client to access their creativity and to facilitate activities relevant to the client's outcomes and development. Other **relationships** include those between staff members and the supervisor/facilitator which again aid reflective practice.

Therapy Client

Bobbie (not his real name) also used our services during transition from children to adult services, accessing 38 one to one and 16 group dramatherapy sessions, delivered by two separate dramatherapists within the organisation. Bobbie's case was carefully managed by a senior therapist, who provided a point of contact and advocacy for him, liaising with his wider circle of support. Bobbie is cognitively very able, and has been diagnosed with autism. He attended mainstream school but suffered frequent bullying, and eventually felt unable to cope. This resulted in a long absence from education, and lacking a peer network, Bobbie became very socially isolated. He was also incredibly frustrated, as this lack of appropriate educational provision deprived him of the opportunity to achieve his academic potential. Bobbie was assessed by Child and Adolescent Mental Health Services (CAMHS), but did not meet their thresholds, and had been waiting for an Education & Health Care Plan (EHCP) for at least a year when he came to us. Bobbie was experiencing severe difficulties managing change & transition, struggling to cope with and adapt to the hormonal, physical and life changes associated with becoming a young adult. Ours was the only service he had been able to access.

Bobbie benefitted from our slow, gentle approach. He used embodied arts, objects and materials to explore his relationship with his senses and the outside world, experimenting with soothing and sensory stimulation and learning how to use internal processes to develop self-regulation. Bobbie eventually felt able to attend social events, and engage in collaborative music and image making, proactively seeking connection and conversation with others. He benefitted from group work with others who had similar life experiences, sharing understanding and developing greater capacity for self-care and compassion. Bobbie eventually progressed back in to fulltime education, at a residential college suited to his academic, psychological and emotional needs. He still visits us when he is home for holidays, brimming with pride about his academic, personal and social achievements. Figure 4 shows the results of mapping the two case studies onto the ecology of practice framework [3,4,8]

Figure 4 Key features of an ecology of practice in the arts therapies (top) and creative expressive therapies (bottom). Both are based on a case examples of working with clients. The ecological framework [3,4,8] shows key relationships and interactions between the practitioner, the client and the environment they co-create and share.
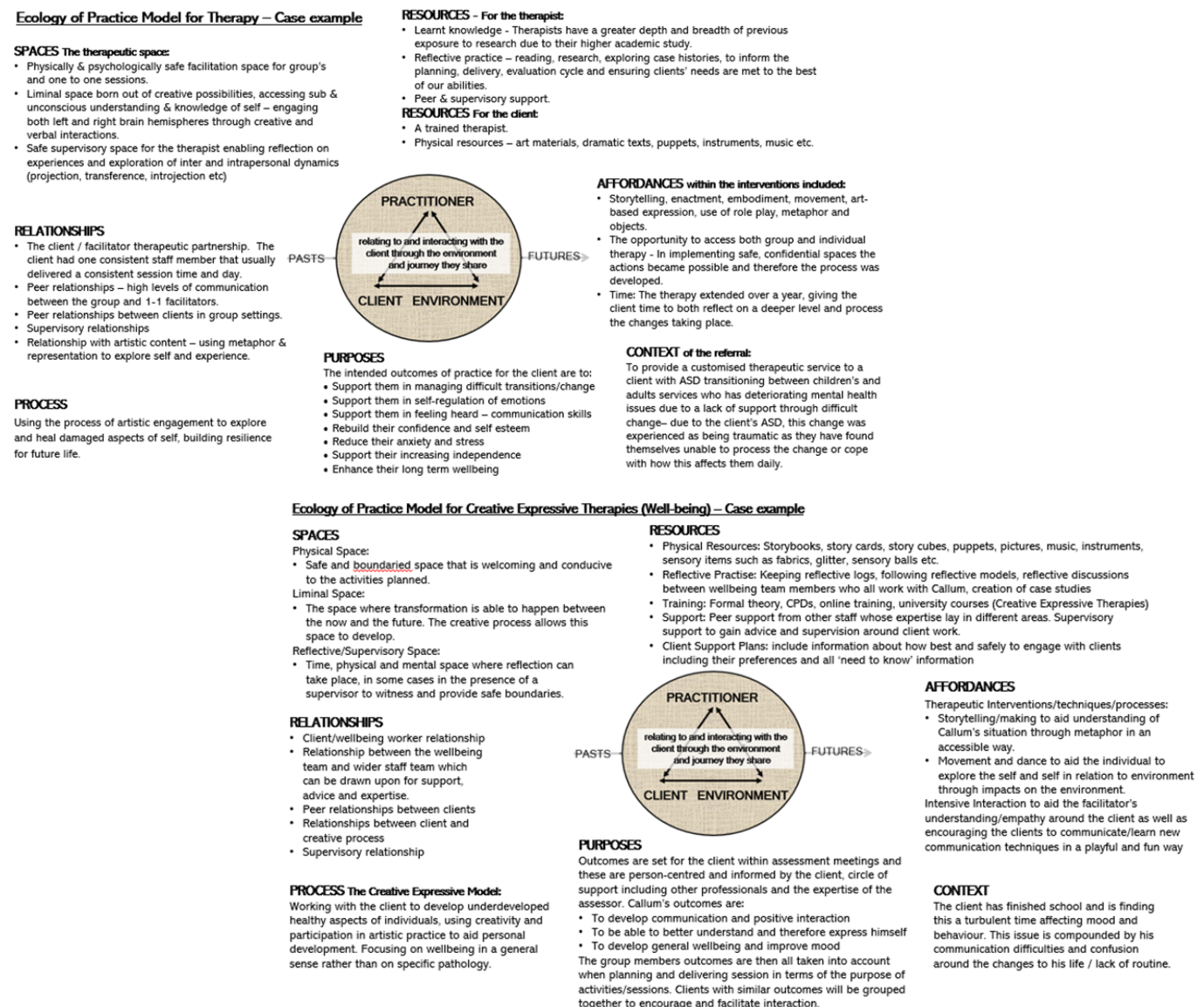
Observations

Comparison of these two ecologies of practice shows initial similarities between the cases.

The **context** for both referrals was very similar: both young men were transitioning between children and adult's services, and both were coming to terms with life changes intrinsic to early adulthood. The **spaces** needed to facilitate healthy transitions for both clients were also similar: requiring healthy boundaries to maintain physical and psychological safety; a liminal space to creatively explore and experience transitions; and a reflective, supervisory space for staff supporting this work. We also noticed similarity in **affordances**: storytelling, movement, intensive interaction, opportunities to access both one to one and group work, and time to develop healthy therapeutic alliances and peer relationships proved helpful in both cases.

Difference emphases began to emerge around **resources**. The physical creative resources identified by both wellbeing and therapy practitioners were very similar, however we were interested to note that our wellbeing practitioner placed these first in her model, whilst our dramatherapist listed these last. This is perhaps significant when considering the difference between services, perhaps indicating a tendency for arts in health type sessions to focus more heavily on art-making, despite our practitioners' conscious emphasis of process over product. The focus of dramatherapy particularly is embodied, liminal experiences rather than dramatic art. We feel this initial observation warrants further investigation through reflection and future research.

For our dramatherapist, depth of learning and understanding of theoretical frames figured as the most important resource for the practitioner, whilst the therapist herself was identified as the most important resource for her clients. Our therapeutic wellbeing practitioner also noted the importance of her degree level education, and the knowledge and understanding gained on her journey to qualification. Both practitioners highlighted the importance of reflective practice, continuous professional development opportunities, supervision, peer relationships, and the resources created within the client's circle of support: life histories, care plans, reflective logs etc.

Exploring **relationships** further, we noted a greater focus on engagement with one consistent therapist in our therapy work. In contrast our wellbeing practitioners, also valuing consistency, took more of a team work approach, with clients likely to work with more than one facilitator in their receipt of services. Peer relationships in group working proved important for both clients, as was each individual client's relationship with their own creative process. Both therapist and wellbeing practitioner noted the importance of their own peer and supervisory relationships in delivering safe, effective services for clients.

Whilst the **purpose** of both types of work was, on the surface similar: person-centred working to facilitate growth and improve wellbeing; it was in the purposes and **process** parts of the model that differences between our services were truly evident. There was a 'lightness of touch' in wellbeing work: avoiding specific pathologies, focusing on positives and facilitating and encouraging interaction to nurture confidence and positive self-regard. In contrast, the purpose and process of therapy was to carefully and sensitively 'dig deeper': supporting the client to name and address difficulties, building awareness and engaging in a healing process to overcome traumas, repair the damaged self, and increase resilience for future life.

Our reflections

The ecological framework is a heuristic which has helped us to contextualize and understand the complexities involved in our different therapeutic interactions.

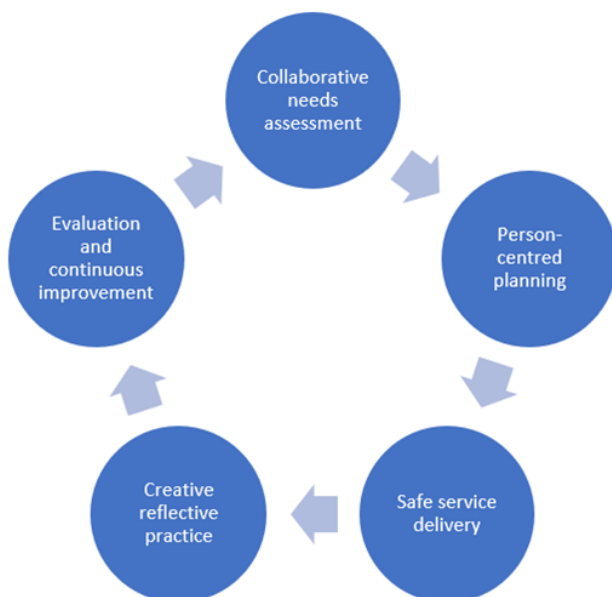We have previously identified the cyclical nature of our work (Figure 4)

Figure 5 Inspirative Service Delivery Cycle[9]

The ecology of practice model reflects key aspects of this process, enabling deeper exploration of specific service delivery, theoretical models, the wider context and client outcomes.

Components of the ecology of practice do not stand in isolation - they can and do connect and interact with each other as the ecology unfolds. These interactions are revealed in the narratives of both practitioner and client during the therapeutic journey: their pasts, their unfolding presents, and thus eventually their respective futures.

The model is flexible enough to adapt to our practices and unique approach of working. It allowed us to understand the finer details of individual approaches, recognising successes, acknowledging challenges, and encouraging wider thinking and reflection. It fits well with our ethos of

continuous service improvement, aiding the development of individual practitioners and our wider organisation. We found all aspects of the model to be inter-relational, dynamic and malleable; each serving a unique purpose, and all essential in building therapeutic alliance.

As we reflected on client journeys and experimented with ecologies at different stages of individual development, we recognised that there is not, perhaps, one fixed ecology of practice in our work, but an ever-evolving family of ecologies of practice operating within our practice ecosystem, responding and adapting to new ideas and situations. We questioned whether this model could capture an entire client journey, instead feeling that each mapped ecology provided a detailed snap-shot of a moment in time, relationship and service. When brought together these individual maps created a nuanced and detailed picture of shifts in dynamics, environmental influences and personal and service developments in our ecosystem.

In our world, time spent in the reflective and supervisory space is as important as time spent in the therapeutic space with our clients. We initially felt the ecology model placed significant emphasis on the "doing" aspects our work – the time spent with clients - and we questioned where personal reflection and service improvement sat. As a result, we found these aspects creeping into every stage of our modelling. This is perhaps appropriate, as creative reflection and continuous service improvement are so fundamental to our practice they underpin every aspect of our work and influence every action we take. However, we felt newer practitioners might need explicit prompts to explore these key aspects of practice, whether under a specific header within the model or in detailed accompanying narratives. This is perhaps something to consider as the model evolves.

Notwithstanding these suggestions for development, the ecology of practice tool has so far been very useful in enhancing our awareness of the ecologies we create and the ecosystem in which we work. It has impacted our staff training, enabled us to map client journeys, and allowed for a more wholesome definition of our services when connecting with and assessing potential clients. We consider it a highly useful addition to our reflective practice toolbox.

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Exploring creativity in business education: case study of a creative problem solving module

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Introduction

Creativity is accepted as a desirable characteristic, a skill, an employability attribute and is likely to be seen by students in job specifications and course descriptions. This article explores the experience of teaching a level 5 Creative Problem Solving (CPS) module in a Business School. The case is made that all students can evidence creativity and need to be given scope to do it in their own way. We argue that even this one module can make a difference to individuals but ideally creativity needs to be addressed across courses. Students do question whether creativity should be included in their Economics or Finance course and that is a challenge of module delivery. To engage with such a module a student will need to see the relevance for them, accept a body of academic material as meaningful and be offered an assessment that evidences creativity in a creative way.

With Complex Problem Solving, Critical Thinking and Creativity being identified as the top 3 skills given for 2020[1] it is vital for students to require these skills and habits in order to be prepared for the world of work. This article examines the challenges and benefits of implementing a Creative Problem Solving module in an undergraduate Business Curriculum. It will highlight the pedagogical rationale as well as assessment options used, include the students' perceptions and the intended and unintended learning outcomes.

Creativity teaching at Birmingham City University

If creativity and creativity awareness can be developed then there are obvious benefits for self, work colleagues, friends and those we teach. If we could find new ways of working perhaps the workplace would be more fulfilling, if a friend could find new ways to socially network perhaps they would feel less isolated, if those we teach could be more imaginative perhaps they would be better prepared for future employment. However, creativity is less tangible and is not like a driving licence, where one day you don't have it and after passing the test you do.

Birmingham City University, like other universities values and promotes creativity and being a creative problem-solver is one of four employability attributes of its Graduate+ award scheme.[2] The challenge is to make the benefits of creativity a reality for students. In 2010, a Creative Problem Solving module was included as a 15 credit, level 5, core module in the business degree pathway. Essentially, all those undergraduate students with business named in their degree (some 400 students) would take this module in their second year. The learning objectives for this module are shown in the adjacent box.

The module was designed for business students to encourage a more creative approach to the problems they faced but could easily be adapted for any student group. The emphasis of the module was to give the student the tools and experience to think about problems, but also to encourage them to reflect on self as 'creative problem solver'. A guiding principle of the module is that we can all be creative in our own way but this creativity may be constrained by the lack of confidence or experience with creativity methods.

> Identify, describe and evaluate when creative thinking skills are needed in a wide range of business environments and problem situations.
> Choose and justify the use of appropriate tools and techniques to creative problem solving.
> Demonstrate proficiency in the use of appropriate creative problem solving approaches to manage a problem solving process.
> Reflect upon the impact of 'self' on the problem solving process and how individual creativity can be developed.

As this module completed for course space with other modules a case needed to be made for the inclusion of a taught module on creativity and the teaching approach to be adopted. The module was justified in terms of the difference it to could make to skills and insights a student could then take to other modules, student well-being and individual student employability. The content of the Creative Problem Solving module was seen as supportive of a dissertation or placement project or any study were the definition and redefinition of a problem statement was important. The module required the management of a process (working through the steps of a CPS model). Value could be seen in the systematic yet creative approach to problem solving. Students were initially presented with a 6 step model so they had a view of the beginning and end, and an idea generation stage in the middle. As the module progressed, alternative models were presented and critically discussed. The delivery of the module was partly determined by operational constraints. The module team had requested a weekly workshop but were given a large one hour lecture and a one hour seminar. This meant that content was delivered by lecture and student activity in the seminar. This format was similar to other modules and was accepted by the students. In the seminars, students would work on their problem with staff in a supportive role. It is interesting to observe how just talking about problem situations makes problem resolution more likely. Students had the opportunity to work on their own or in group depending on the exercises or techniques being used. The seminars gave the opportunity to encourage student creativity. We might talk about deferred judgement but students might still need that push to come up with wilder ideas and build on existing ideas. A workshop setting would have allowed a more flexible delivery of content and activity but would have resource implications. The assessment by digital story was seen as effective and a driver of engaged student behaviour.

The role of assessment in creative problem solving

The importance of assessment has long been recognised. According to Race[3:3] assessment is "the most important thing that to you in higher education". Assessment signals to a student what is important and what is expected. A multiple choice test might be efficient but would do little to evidence the use of creativity. We are reminded by Brown[4:81] that "assessment is probably the most important thing we can do to help our students learn. We may not like it, but students can and do ignore our teaching; however, if they want to get a qualification, they have to participate in the assessment processes we design and implement". The challenge was to design assessment that was not resource intense, allowed students to evidence the use of creativity techniques and facilitated creative outcomes. A range of possible assessment was considered including a traditional PowerPoint presentation, the creation of an icon, the use of a poster gallery and a digital story. An individual digital story offered the benefits being a very different type of assessment for our students with a chance to be creative with images and what could be said.

A digital story in the form of a video brings together images and voice in a meaningful story. Students were asked to create a digital story of no more than 5 minutes using MovieMaker on Windows (not on the most recent release of Windows 10), PowerPoint as a video slideshow with audio or iMovie on Apple, although the use of other software was not discouraged.

Pedagogy

Our role as teachers is to set the challenge, based on problems that learners self-identify and create the conditions that encourage learners to explore and refine their problem. The module challenges the notion that there is a 'right answer' to the sorts of problems being tackled.

The module is scaffolded so that students are taken through a process of problem recognition, definition, redefinition, idea generation and choice. Students are introduced to several models of creative problem solving which they will draw upon in their own problem solving project. We use the definition by Van Gundy Jr.[5:3] that defines a problem as "any situation in which a gap is perceived to exist between what is and what should be". In this definition, the absence of a gap means there is no problem! In our experience, students like this way of seeing a problem and they can apply to their chosen problem.

At the heart of the module is the 'challenge' to students, to find, explore and solve their own problem within the limitations of the one semester timeframe. Their engagement with the challenge and what they learn through trying to solve their personal problem forms the basis for the assessment. A problem situation can be described in any number of ways. Redefinition allows for problem statements that are supportive of more creative outcomes using techniques like boundary examination, goal orientation, progressive abstraction and laddering. The effective articulation of a problem is a critical part of creative problem solving process and just rewording can facilitate a more imaginative approach.

Students are given guidance but only to stimulate their imaginations and develop their own approaches and ideas. We try to give the student as much discretion as the assignment brief allows to work on their chosen problem believing that problem ownership, insight and understanding are a significant part of problem solving. A typical problem that starts off as, 'I want a placement', is likely to move to 'how do I develop the skills that a potential placement employer would value'. Fact finding is a necessary part of exploring the problem from many different angles. In the case of the example given above a student might consider issues like the competition for places and the likely impact a placement will have on their final award. The ideas emerge a student's grappling with their problem. It is all a process of the student taking the lead and, as we keep saying, 'telling their story'. What is important is that the student is active rather than passive. This can be challenging in terms of marking but in our view correctly means an acceptance of difference. A student can achieve good results in many different ways by showing understanding, application and insight.

The assessment invites learners to report and reflect upon the way they identified, redefined and solved their problem using the medium of a digital story. A digital story is just the student's voice talking over of selected images delivered as video. A digital story allows the student to build their case like they would with a Power-Point presentation but in a more permanent format.

The assessment can be framed to give a less restricted problem choice e.g. 'explore a problem that makes a difference to you' or a more restricted choice e.g. 'in what ways might I improve my employability'. The experience from several cohorts is that the less restricted choice often leads to more student anxiety but more creative outcomes and the more restrictive choice give less student concern but more 'workman-like' outcomes.

In the Business School, most student use WORD, Excel and PowerPoint and have little experience of software like iMovie/eportfolio. Consequently, making a digital story is a new experience for most students and the challenge encouraged them to use their creativity. Student feedback on using other aspects of technology e.g. voice recording has been very positive.

Table 1 Marking scheme

Creative Problem Solving: marking scheme 2017

Name:

First 70+	Upper Second 60 to 69	Lower Second 50 to 59	Third 40 to 49	Fail below 40
The submitted assessment (digital storybook) will comprehensively and imaginatively explore the creative problem solving process. A relevant and imaginative problem definition would be given with insightful redefinition. A large number of ideas would be generated using a wide range of different techniques. The assignment would show how the idea generation could improve choice. An awareness of the role of the individual in the creative problem solving process would be fully considered.	The submitted assessment (digital storybook) will extensively explore the creative problem solving process in an insightful way. A relevant and thoughtful problem definition would be given with redefinition as necessary. A large number of ideas would be generated using a range of techniques. The assignment would show how the idea generation can be informative. An awareness of the role of the individual in the creative problem solving process would be examined.	The submitted assessment (digital storybook) will explore the creative problem solving process but in a mechanistic way. Stages of the process would be followed by with limited evidence of creative thinking. A relevant problem definition would be given with some redefinition. A number of ideas would be generated using fairly standard approaches. The assignment would show how the idea generation could inform decisions. An awareness of the role of the individual in the creative problem solving process would also be acknowledged.	The submitted assessment (digital storybook) will explore the problem solving process with limited creativity. An adequate problem definition would be given with limited redefinition. Some ideas would be generated using a number of techniques. The assignment would show how the idea generation could be helpful. An awareness of the role of the individual in the creative problem solving process would also be identified. The outcome would have little impact on problem resolution	The submitted assessment (digital storybook) would show little understanding of the problem solving process. The problem definition would be of limited value. No real problem redefinition. Only a few ideas would have been generated. Little awareness of the individual in the creative problem solving process
Tick or comment as appropriate				

You need to ensure adequate coverage of all the following criteria. These are not mathematically weighted.

Suitability of problem and description of problem situation		☐	Consideration of evaluation and implementation	☐
Development of problem definition and use of redefinitional techniques		☐	Creative use of video	☐
Generation of ideas and use of idea generation techniques		☐	Digital story content	☐
Clarification of options and choice		☐	Digital story presentation	☐

When it came to valuing and rewarding students' creativity we used a set of general criteria (Table 1) and adopted a 'light touch' 'holistic judgement' approach within this guidance framework. We also wanted to give credit for unintended learning outcomes. This approach was accepted by students and the External Examiner. Students were told that for a higher mark 'a large number of ideas would need to be generated using a wide range of different techniques'.

We meet as a team, and looked at a sample of digital stories and agreed a mark for these. This provided a bench mark. The digital stories can be viewed by all the team and we pair up (buddy pairs). If we come across one that is very different or we are unsure how to mark it we liaise with our buddy, occasionally we involved other members of the teaching team. We have been happy with the marks. We have tried to be innovative with the assessment and with our approach to marking.

Student responses to the module

The progression rates for this module are much the same as other modules but student responses are more diverse with some students being very positive and others being very negative.

Student feedback on their experience of the module comes in the form of a university administered questionnaire midway through the module delivery and an end of module questionnaire added by the teaching team. The majority of students (typically 70 to 80%) report being satisfied or very satisfied with the module but a substantial minority are dissatisfied or very dissatisfied. The findings show a clear division of opinion between those that are very positive about the module and those that see little value in the experience.

The following quotes from the end of module questionnaire are typical:

"I enjoyed the module. It was interesting, thought-provoking and intellectually stimulating. Actually made me think of ways that I could overcome my fear of public speaking, so it was definitely worthwhile! Maybe more assessments should be like this one."

"Digital element, I really did enjoy it. It was something I'd never done before and took the pressure off where other assignments were written."

"I do not want to have to learn how to use iMovie for an assessment as I didn't opt in for a media course therefore find this irrelevant. I appreciate that different methods are used to assess students' skills and how they cope with things out of the norm but this is too far from useful."

"I feel just as disappointed and robbed of my student loan by partaking in this module as I did from day one."

It is always to challenge to improve student satisfaction for any module but it does seem the case that some students will be responsive to a module of this kind and others will not. Given that a course, should be a mix of complementary modules spanning the subject area, do we need to accept that not all modules make a similar contribution to discipline knowledge and not all modules will be accepted as equally relevant by all students?

Assessment is seen as a significant driver of student behaviour [6,7] (Kirkwood, 2009; Rowntree, 1989). The type of assessment will allow the student to make a judgement about how difficult they are likely to find the module and what kind of study plan they will need. If a student wishes to be strategic, then an end of module examination is going to need a very different kind of strategy to a weekly journal. The student feedback on a digital story as assessment has been very positive with 84% or more being satisfied or very satisfied. A digital story has a number of desirable characteristics:

> it is typically different to other assessment
> gives a real opportunity to use different software and develop transferrable IT skills (see below)
> it produces an artefact which can be shown to others like potential employers
> it is a self-presentation and encourages reflection

One comment frequently made by students is that having bought expensive laptops they have only used them for email, google search, Word and PowerPoint. The making of a digital story is a reminder to business students of the potential offered by technology. The assignment requires students report their experience of the problem solving and to reflect on self as creative problem solvers. However, the assignment mechanism, short video, itself can be very creative. Many students have exceeded expectations in terms of their use of background music (often their own), lyrics, poetry and images (from software like Photoshop). In this case, the unintended learning outcomes evidencing an insight and understanding beyond the intended learning outcomes (Cowan, 2011).

Discussion

It would be difficult for a Creative Problem Solving module to claim that it can make individuals more creative. We can't even assume that what is creative for one individual would be creative for another as everyone's understanding of what personal creativity means is different.

What this module offered is opportunities and encouragement for students to think differently about problems, use different techniques when problem solving and reflect on themselves as a problem solver. Such techniques, and awareness of when and how they might be used might make a difference in the workplace when problems have no obvious answers.

What a creative problem solving module can offer the student, is a module that allows the student to experiment and take risks in a safe environment to work on a problem of interest to them, and therefore, hopefully, stimulates their intrinsic motivations so important in creativity. It also introduces them to a variety of creative thinking techniques that they are unlikely to see elsewhere in their course, and provides the space for them to use these techniques on their problems. The assessment encourages them to use their own creativity to create a story and represent this story digitally, perhaps using techniques they have not used before. In this way they have a tangible representation of their creativity which can be shared with others.

A module like Creative Problem Solving can add to the range of experience of a student. In a recent survey of those that had completed their degree course, this module was described as helping with the dissertation, confidence building and giving a more memorable learning experience. The module explores issues like problem ownership with a message that needs to be supported by the assessment requirement. If the assignment brief requires a student to find creative ways to enhance their employability then their thinking will shift from 'what can the Careers Office do for me?' to how can I develop and articulate the skills that will be valued by employers? We can talk about 'not seeing the wood for the trees' but seeing a problem clearly can be a challenge. Defining and redefining a problem can give a remoteness that helps with seeing a bigger picture and also allows others to contribute. In lots of ways we can argue that difference is important and this case applies to the value of a different kind of module.

We are reminded by Foster (2014, p 3) that "the most important argument for higher education to take creativity in student's learning more seriously is that creativity lies at the heart of performing, learning and developing in any contexts and the highest levels of performance involve the most creative acts of all ". Creativity may be important but how can a student evidence? In a recent report by the World Economic Forum[1] the top 3 skills given for 2020 were Complex Problem Solving, Critical Thinking and Creativity. Creativity is also about a creative environment and opportunity. A module like Creative Problem Solving can create an environment where coming up with new ideas is important and where issues can be discussed in an academic context. In fact, marks are awarded for being creative. Creativity itself being a discussion topic. Within the context of the module, the textbook by Procter[10] describes "creativity involves the ability to come up with new and different viewpoints on a subject. It involves breaking down and reconstructing our knowledge about the subject in order to gain new insights into its nature". However, Isaksen et al[11] makes the point that "although creativity is a complex and challenging concept, with no universally accepted definition, it is understandable".

The evidence shows that most students will engage with creativity. A vocal yet significant minority may question it as part of their course. What we do not know and is worthy of further research is whether they see value in their future studies. We do know that they can find it useful when self-managing a dissertation. The content raises awareness of modelling a process and a reminder of the range of tools, techniques and methodologies available. Digital storytelling has proved to be an effective way to evidence creative problem solving and provided a platform for creativity. The imaginative work produced often exceeding expectations. In our view, just being more aware of the issues of creativity are likely to lead to more creativity and we do see this. Students are also encouraged to be reflective and this is rewarding by the marking scheme. They can consider what kind of problem solver they are and what kind of modelling of the process works for them.

It is our view, that such a module could be incorporated into other (non-business) courses bringing creative problem solving into the wider curriculum.

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