
A Situated Model of Creative Learning

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ABSTRACT This article puts forward a situated model of creative learning. Most educational studies on creativity tend to concentrate on explaining the relation between teaching and creativity while keeping learning as a secondary concept. However, it has been stated that it is likely that teaching creatively leads to creative learning, suggesting that there is a need to describe the concept of creative learning and to analyse its possible constituents. Accordingly, this presentation introduces an empirically based and theoretically informed model of a creative learning community. The model is based on three key concepts or learning principles which can take different forms in particular settings and social practices. These are respectively: (1) Immersion in the topic of interest, in traditions and in the subject matter, (2) Experimentation and inquiry learning and (3) Resistance from the material of interest. As a theoretical point of departure, this presentation will outline a situated model of creativity and learning, and following this, will introduce a model of creative learning. This presentation will include several empirical examples. In the final part, the model will be discussed in relation to the concept of creative teaching.

Introduction

Creativity, innovation and entrepreneurship are some of the currently most celebrated concepts in the educational system (Neergaard et al, 2012). As described by Csikszentmihalyi in 2006, creativity is no longer a luxury for the few, but a necessity for everybody. The reasons for these changes are manifold. The fact that we live in a globalised world in which nations engage in intense international cooperation and competition means that even well consolidated companies and nations face great challenges if they don't manage the change to higher-order economies increasingly based on knowledge and symbolic resources (Peters, 2010). Sophisticated information and communication technologies and customers used to change and news mean that products have shorter life cycles, something very evident in the fashion industry (Vangkilde, 2012). Jobs which do not require creative human capacities are outsourced, and in Asian and Western countries, the middleclass grows and the amount of spare time increases. This means that the so-called creative industries producing lifestyle products can expect a growing market because of increased time available to consume these on a global level (Lorentzen, 2013). In the western world, public welfare is challenged due to demographic changes with fewer hands to take care of many people outside the labour force (Wegener & Tanggaard, 2012) and we face climate changes, youth unemployment and poverty in certain areas.

In light of the above and due to the growing marketisation of the educational system, innovative and entrepreneurial competences are seen as something the educational system must help to restore and/or avoid killing among children. Sawyer (2012) argues in his book *The Science of Human Creativity* that this may help make education more effective and fun in relation to learning, and that creativity and the ability to imagine new futures are the overall most sublime human capacities. However, our knowledge of the relation between learning and creativity is still very seldom highlighted (Tanggaard, 2011). Peters (2010) states it in the following way:

Much of the literature concerning education and the creative economy emphasises the role of the arts in economic development and the need for building forms of cultural, social and public entrepreneurship. The problem is that beyond the formulation of concepts such as 'creative industries', 'creative cities' and 'creative class' little analysis has been made of creativity in schools apart from fostering instrumental versions of creativity or simply regarding 'education, training and skills' as one aspect of the creative economy. There is still a long way to go in theorising and developing policies that encourage creativity in schools predicated on new forms of social media and better understanding of new media and knowledge ecologies that democratise access to knowledge, decentralise organisational and authority structures, encourage a greater personalisation and autonomy of learning while promoting new forms of 'collective intelligence' and peer learning based on a new ethic of participation and collaboration. (Peters, 2010, p. 73)

That is: the concept of creativity in schools is still quite empty, and there is a growing need to find more democratic and collective organisational structures facilitating creativity and peer learning. Furthermore, most educational studies on creativity have up until now concentrated on explaining the relation between teaching and creativity and in this context, learning very often remains as a secondary concept (Torrance, 1972; Hennessey & Amabile, 1987; Fasko, 2000-2001). An example of this tendency can be found in Cheung's article on teaching for creativity (2012). Cheung states that the following two dimensions are of uttermost importance if teachers want to promote creativity: 'To achieve the goal of promoting creativity in education there are two issues that require attention: (a) what creativity means to teachers, and (b) their actual practices to facilitate creativity in the classroom' (Cheung, 2012, p. 43). I agree completely, but I would argue that we also need a third point, namely what kind of learning is vital and how learning processes actually lead to more creativity. However, the focus in much of the literature concerning creativity and teaching seems to be concentrated on the actions of teachers with less focus upon studies of the actual learning processes among the students.

In Simonton's article (2013) a whole section is devoted to the topic of teaching creativity; a section which proceeds without mentioning the concept of learning. What Simonton discusses is the fact that promoting creativity among students in a class might require us to teach in new and useful ways. He then addresses how he has found it useful to surprise his students by for example wearing a t-shirt with a sentence imprinted concerning the topic of the lecture of teaching. He also mentions teaching experiments such as having the students, when the topic of the lecture concerns creativity tests, actually take a test themselves and then let them discuss the various benefits and disadvantages of tests of creativity.

These activities are surely great as they make the students practice testing and the students likely get a hands-on experience with the subject matter of teaching, while the t-shirt event is assuredly funny, surprising and hopefully awakens attention. However, we still don't know if these activities happen to fuel the creativity of students and there is no theorising on the eventual learning processes; maybe because they are extremely difficult to study and put to the test as the relation between teaching and learning is endlessly complex. However, Anna Craft (2005) has stated that it is likely that teaching creatively leads to creative learning among students and pupils, suggesting that there is a need to describe the concept of creative learning and to analyse its possible constituents. Accordingly, this article introduces an empirically based and theoretically informed model of a creative learning community. The model is based on three key concepts or learning principles which can take different forms according to particular settings and social practices. In the following, the theoretical departure of the article in a situated model of creativity and learning is presented and after that, I will introduce my model of the basic ingredients in a creative learning community. This presentation also involves the demonstration of empirical examples. In the final part of the article, the model is discussed in relation to concepts of creative teaching.

Theoretical Departure

My main inspiration for working with creativity takes its point of departure in Lave and Wenger's (1991) work on learning understood as changing participation in changing social practices. Lave

(1999) emphasises the need for the concept of learning in the social sciences to account for the fact that social structures are not blindly reproduced by actors in social practices, but reworked, changed and altered through the learning of participants herein. Based on studies of learning among apprentices, my interest has been focused on the learning needed to take part in different social practices with various and sometimes conflicting tasks in everyday life (Tanggaard, 2007; Tanggaard & Elmholdt, 2008) and how this may lead to the development of sometimes very innovative trajectories of learning among the participants (Tanggaard, 2008). Lave and Wenger's basic conceptualisation of learning takes as its point of departure that 'Learning is a process that takes place in a participation framework, not in an individual mind' (Lave & Wenger, 1991, p. 15). In this sense, learning is a fundamentally social and everyday phenomenon and the involved changes in social practices are likely to require creativity on behalf of the participants to come through and would sometimes also cause innovative changes in the practices involved. As such, creativity is a necessary ingredient in learning processes when these require us to handle situations, tasks and practices in new ways. In this sense, the results of creativity are not only to be judged by assessing signs of divergent thinking as most psychological treatments of the phenomena tends to do (Zeng et al, 2011; Tanggaard, 2013). Creativity involves changes and transformations of people and social practices, hopefully for the better.

While the above situated concept of learning and creativity in social practices is mainly inspired by Lave and Wenger (1991), my particular conception of creativity is also involving main ideas formulated by the German pragmatist Hans Joas, among others, in the book '*The Creativity of Action*' (1996; originally published in 1992 as *Die Kreativität des Handelns*). According to Joas, a pragmatic perspective implies that human cognition and learning is not conceived of as primarily an isolated mental process. Cognition and learning must be understood as part of life itself. From this perspective, cognition is a creative human life practice, and human action is seen as creative action. Joas' conceptualisation of creativity is inspired by among others George Herbert Mead and John Dewey, and it intends to do away with an ends-means rationality model of human action. According to Joas, it is wrong to assume that human beings first plan their actions (in the mental domain) to be able to take action afterwards by following the plan (on a practical plane). In contrast, 'actors find themselves confronted with new situations that force them to come up with creative solutions – a process which cannot simply be captured by a functionalist logic' (Joas & Knöbl, 2009, p. 522). This implies that the concept of situation replaces a means-ends logic, for it is in the concrete situation, where people take action that perception and cognition takes places and where plans are formulated and all of this requires human creativity: 'These situational challenges thus require new and creative solutions rather than the unwavering pursuits of goals and plans formulated at a particular point in time' (Joas & Knöbl, 2009, p. 518).

Accordingly, to work with a situated conceptualisation of creativity draws on the fundamental assumption that creativity concerns our ability to act wisely, creatively and intelligently in situations which challenge us and which can't be handled according to the usual repertoire of action potentials. As stated by Bilton (2007, p. 39): 'Creativity is better understood as a process rather than as an individual trait – something we do, rather than something we have'. Creativity is something done (often in cooperation with others), and creativity is a process that changes something in reaction to or confronted with the problems caused by what is done currently.

Creativity as Part of Life in Itself

In the above, it is hopefully evident that the situated pragmatism, which I'm advocating, assumes that human cognition is based on inquiry, on the creative potentials of human beings in a world of constant change which we try to understand, control, handle or change. This is why creativity is part of life in itself and not something reserved for unique individuals. Accordingly, creativity is a necessary part of thinking and acting in new ways in a world that requires us to act. Either to continue living, disturb status quo or to re-establish order, and human creativity does this work because the manuscript for how to do this is not written on beforehand (Brinkmann, 2009). It requires acting.

In light of the above, a main point would be that schools and education play a major role in relation to cultivating the ability of pupils and students to understand the world as changing and the need for this capacity is certainly underlined in a fast accelerating, postmodern and globalised world where the labour market is facing major changes, and where we face ever more complex economic, climatic and ethnic challenges. In this situation, it is extremely important that pupils and students learn to recognise and see their own possibilities for acting in and quite literally manipulating their world (Brinkmann & Tanggaard, 2010). Such acts of inquiry are necessary either to change current circumstances or to stabilise everyday life in new ways. Let me make this point more concrete.

Immersion, Experimentation and Resistance: constituents of a creative learning community

As mentioned in the introduction to this article, it is my thesis that at least three learning principles are to be somehow present in and central to the cultivation and sophistication of creative actions among participants in a given learning community. These are

1. Immersion in the topic of interest, in traditions and in the subject matter;
2. Experimentation and inquiry learning;
3. Resistance from the material of interest.

The three activities mentioned in the model must be seen as involved in and as closely intertwined in all kinds of possible creative learning communities.

The principle of immersion in the topic or tradition is inspired by creativity research underlining that solid and relevant knowledge and a certain amount of expertise within a given domain (cooking, arts, sports etc.) are central to developing one's own creativity (Amabile, 1996; Sternberg, 2006). It is when we know something about what we do that we are best able to handle the challenges confronting us, as long as this knowledge is not a barrier in relation to thinking and doing something new. As mentioned by Guilford already in 1950: 'No creative person can get along without previous experiences or facts; he never creates in a vacuum' (Guilford, 1950, p. 448).

What we do when we act creatively is that we are intervening in worldly processes that are already going on and the more sensitive and responsive we are towards these on-going processes, the better the chance that we can make something new. Again, we do not begin with a great plan or a big idea and then impose it on a world already there. Rather, when creating we are giving form to something in flux and being able to correspond to this world, knowing it by way of experience, is what makes us creative (Ingold, 2013). As one of the music teachers say metaphorically in Anna Linge's thesis (2013) on creative teaching within music in Swedish high schools: 'If students only know about apples, they can only work with apples'. Accordingly, a teacher interested in expanding student's creative potentials, not only with apples but also with pears and other kinds of fruit, would need to, again metaphorically, to introduce the same students to the world of pears and bananas to expand their possibilities for creative action.

Immersion in tradition is indeed an important part of developing a creative potential through learning. In the book *Talent*, Claus Buhl (2010) describes research by the Swedish Professor of Psychology K. Anders Ericsson into expertise among violinists at the Berlin Conservatory. Ericsson sets out to study whether top violinists are more naturally talented than others. His studies show that this is not the case. Their ability is grounded in countless hours of practice as well as good help and feedback from instructors, advisors, and mentors. The violinists seek out others who can lift them further and assist them in entering the learning zone. It is not just about practicing for many hours; is also about practicing the right things – the difficult and the challenging – that can help them learn more.

By getting the violinists to write diaries, Ericsson discovered another interesting thing: it turned out that the very best violinists all take naps in the middle of the day. Why? Because it is exhausting to practice for hours at a time – and because this little pause gives them the extra energy and calm necessary to refocus and maintain perspective. When we wish to be creative, it is not about pacing oneself but about working in a reasoned manner. Ericsson calls it deliberate practice and argues that the road to exceptional creativity is many hours of practicing acknowledging the

need for rest to avoid losing energy and burning out. And this is, quite frankly, a piece of wonderful news.

The second principle in the creativity model put forward here is termed: experimentation and inquiry learning. This principle is based on the recurrent emphasis in creativity research on the importance of experimentation, play and inquiry in relation to the cultivation of creativity (Cropley, 2001). It is also empirically based on a year-long field study among apprentices within vocational learning (Tanggaard, 2008), where I as a researcher found out that the apprentices spent enormous amounts of time doing moonlighting, 'And I realised how much they learned from this and how creative they really were, when they were allowed to experiment with the materials within their domain. These experiments often happened in breaks or in zones and spaces in the workplace or at school when they had time to play relatively freely with materials and make their own projects and design-ideas work. The experiment as a basic concept is furthermore very closely aligned with the pragmatic assumption that creativity is a matter of curious and open-minded inquiry in situations requiring us to respond in new ways.

The fooling around during moonlighting activities is something the apprentices do when they have something at hand that needs to be fixed. And it appeared that they actually took responsibility for their own learning, learning what was needed to be done and what needed to be fixed. Accordingly, doing so, the apprentices were moving, unrestrained, in the direction of the democratic, peer-based learning soon after as in Peter's quote mentioned earlier.

As a basic category, experiments and fooling around lie close to the pragmatic assertion that creativity consists of relating curiously to situations that demand we respond in new ways.

The third principle in the model termed resistance from the material is inspired by anthropologists Ingold and Hallam (2007) who argue that creativity is a relational phenomenon building upon what humans do, but also what tools, materials, and artefacts invite us to do. The material can, so to speak, talk to us or invite us to engage with it in certain ways leading to a sort of relation between the creation and the creator. Furthermore, artists often describe how the material they are working with (tree, metal, canvas or whatever) is either inviting them to work in particular ways or the material happens to be somehow resistant in the creative process (Tanggaard & Stadil, 2012). As described by Richard Sennett in an interview with Hans Joas and others: 'It is the notion that by experiencing resistance in the environment and by working with that resistance, we begin to give; by working with the resistance rather than trying to overcome it' (2006, p. 11). All of this means that the experience of being lost, to lose one's orientation or simply just being frustrated can represent an opening of creative chances, a statement which is clearly opposite to the viewpoint that creativity is a matter of harmonious self-realisation or the problem-free search for creative opportunities.

This means that the experience of being lost, of being disoriented, of being held back, or simply of being frustrated can prompt a creative opportunity to arise. The pragmatic, situated perspective thus insists that creativity is about learning by and through resistance, a conception quite unlike the more aesthetic, humanist understandings of creativity that dominated the eighteenth and nineteenth centuries. In his through-going discussion of concepts of creativity, Pope likewise underlines the need to move away from 'stereotypically romantic notions of what it is to create, as though all creative imagination generated its light and heat from within the self' (Pope, 2005, p. 16). The trouble with an exclusive and often individual understanding of creativity is namely that it tends to reserve creativity for the intellectual moment. As stated by Mumford: 'Creative thought has served as a foundation, or reference point, for most studies of creativity. If we do not know how people generate new ideas, it is difficult to place observations about motives, dispositions, situations and developmental change in context' (2003, p. 111).

However, actual people are constantly engaged in transforming, changing, and renewing existing traditions and ways of living their lives and these transformations need not be based on intellectual, cognitive activity or 'new ideas'. Some changes in our lives can be based on old ideas, however odd it may sound in a culture celebrating 'the new' (Bilton, 2007) and the cognitive, intellectually derived ideas may not even come first when we actually change social practices. Some changes happen without notice and/or through the gradual erosion of current forms of natural/cultural forms of life, changes which may at points be based on divergent thinking, but surely also convergent thinking, routines, habits and daily cultural practices. Again, as mentioned by Pope following the critique of a pure romantic model of creativity: 'a more subtle model of

creativity must include kinds of re-creativity and pre-presentation, whether the more or less faithful reflection of something that is held to exist already, or the ceaseless refraction of something that never really existed otherwise' (Pope, 2005, p. 16).

Likewise, Ingold and Hallam (2007) have little time for the idea that individual and environment are two static entities confronting one another and the dualism involved in stating that first we need to understand the generation of new ideas within individuals and then how situations might change due to the new. Rather, they see the world as being in a constant state of becoming. This understanding does not differentiate strongly between self and environment, between tradition and renewal or even between convergent and divergent thinking. It is first and foremost a dynamic conception of all individuals as creators with the ability to modify, adjust, and change the environments in which they find themselves. The world does not tower above us like some colossus of unchangeability; it reacts to us. We are all constantly engaged in changes, and it is impossible to separate creation from creator – or the materials from the people who create. In the same way, a material can be regarded creative in its confrontation with people, who respond to the object's hardness, its softness, or whatever the object can do for them.

In a recent article (Tanggaard, 2013), I argue that all of this points at the need for developing a socio-materialised understanding of creativity. A socio-material conception of creativity is based on the assumption that a design is nothing without materials. All ideas for something new – a new house, a new car, a new piece of clothing – require materials. An architect's design does not become a new house without building materials and without the builders who raise the house and make it habitable. Moreover, although buildings in architects' oeuvre's are often never built, the designs exist in some material form, e.g. on paper or computer, and were created using these materials. Moreover, the architect is creating his design with the known affordances of building materials and normally with a particular material site in mind.

The idea that creativity exists in the dialectical relation between individuals and materials in social practices represents a very real break with the individualised conception that creativity originates from intellectual, cognitive achievements or from individual emotional sources. Creativity is, on the contrary, expanded to include the materials that are worked with and that quite concretely comprise that which is created as well as the continually developing creations of the products we produce. As described by Ingold and Hallam: 'and because it is the way we work, the creativity of our imaginative reflections is inseparable from our performative engagements with the material that surrounds us' (2007, p. 3).

To conclude preliminarily: it is important to underline the relations between the principles in the model of creative learning put forward in the present article. Experimentation and inquiry learning does not in itself lead to creativity among the participants in the learning community if it is not connected to the ability to handle thoroughly the subject matter concerned. The resistance from the material worked with is central for provoking and enlarging one's own ways of working. However, the resistance is only felt if one dares to engage in immersion in the material, and if an experimenting kind of inquiry is allowed. When all three principles work together, the chances that students and pupils develop their own creativity through learning are high. In the following, each principle is further described and developed.

Discussion of the Model

If we do know something about how to teach more creatively and design learning situations ideal for creativity, why do we then still face problems when trying to act accordingly?

Some researchers have pointed out that the most significant barriers to creativity in school are that students in, for example, primary schools receive insufficient opportunity to see and learn from productive masters who exercise their abilities. According to Nielsen (2009), there are very few masters in primary school; most teachers are masters in pedagogy rather than in, say, music even if they primarily teach music. This can represent a *de facto* barrier, especially in terms of the argument set out in this article that students learn to be creative by being exposed to and participating in creative learning and work environments. A precondition for students having access to creative learning environments is that they *also* have teachers who create things for themselves. Teachers and schools could, for instance, seek to promote creative development or the

development of new products even though schools are not traditionally places in which new inventions and other productive activities take place. As a Nobel Prize winner states it in an interview in the book *Scientific Elite* concerning the difference between learning the techniques of science and learning to think distinctively as a scientist:

I knew the techniques of research. I knew a lot of physics. I had the words, the libretto, but not quite the music. In other words, I had not been in contact with men who were deeply imbedded in the traditions of physics: men of high quality. This was my first real contact with first-rate creative minds at the high point of their power. (Zuckerman, 1977, p. 123)

The above quote highlights how what I would term creative learning processes require exactly more than the mastery of techniques as it is dependent on immersion in a given field with the teacher (or master) being a role model for his or her students. Maybe this is even more influential than the other things to be learned: the subject matter, skills, and methods. However, we will not only need to go deep, but also to experiment with what is new.

It is my impression that some students develop a disengaged and purely instrumental approach to learning in school and the education system precisely because they are blocked by the exaggerated focus on getting the correct answers and replicating knowledge produced by others. Time and space for experimental, quirky, and alternative efforts and products quickly dissipate. It might make sense to always follow the rules, traditions, and correct means of answering if one wishes to become a researcher or teacher oneself. For the many people who wish to do something different, it could be preferable to break the rules occasionally (as it would actually also be for the researcher and teachers). Nevertheless, the conditions students will later encounter in their working lives are to a very high extent based on a different logic than those of the school system. For example, working life can involve more pressure for quick decisions, meaning that the precision and detailed evaluation that the educational system often rewards could sometimes act as a barrier to succeeding in the world outside of school. This is, of course, something of an oversimplification inasmuch as quick decisions must also be made during the course of an education and just correct answers are necessary within a working environment. Be that as it may, instead of giving students the experience of never quite living up to their teachers' standards, it would perhaps be more useful to cultivate a desire among students to approach new assignments from a more experimental perspective – especially if one seeks to promote the desired creativity.

For this, it is necessary to be introduced to and immerse oneself in the subjects, yet that alone is not enough. Martha Nussbaum (2010) writes in her book *Not for Profit* that an overly one-sided school system does not manage to cultivate students' imagination, which she regards as a prerequisite for democracy. We are thus discussing not only a need for teachers to act more quickly and experimentally than they tend to in the current educational system but also the idea that their goals or visions could be even more radical. As Nussbaum writes, it is 'the faculties of thought and imagination that make us human and make our relationships rich human relationships, rather than relationships of mere use and manipulation' (2010, p. 6). These are furthermore important 'because democracy is built upon respect and concern, and these in turn are built upon the ability to see other people as human beings, not simply as objects' (p. 6). The ability to think critically, to go beyond existing frameworks, and to imagine the aims and intentions of others are, in other words, prerequisites for the development of democracy and could rightfully be placed under the umbrella of 'creativity'. This requires that one is allowed to experiment far beyond the boundaries that are set for tasks such as ticking off boxes in a multiple-choice test.

Relative to the importance of experiments and fooling around, we must not overlook the necessity of creativity-promoting environments, experiments, and fooling around outside of school. Transferring all of one's creativity outside of school and into other contexts is not, of course, an easy task. There is also a place for children and youth to have leisure time outside of the established school systems and the teaching itself. On the basis of empirical studies of learning from students' perspectives (Tanggaard, 2007), I have previously shown that much learning takes place in the context of crossing boundaries or moving between spaces for action in students' lives. In other words, it is not always possible to localise creativity in a particular place. Generally speaking, learning occurs within and across various areas. I use the expression 'being a journeyman' in connection with the fact that many attempt to cultivate creativity precisely by seeking inspiration from various contexts. This can happen when one's work has come to a halt and one requires new

perspectives. This type of creativity can thus occur either unintentionally or as part of a conscious strategy. There is potential innovation capital in the gaps *between* all of the intended attempts at promoting creativity in a school context (Saltofte Nielsen, 2009). I argue that these 'gaps' are ideal places for experimenting with that which is taught during school. Breaks in teaching can represent a gap of this sort, as can spaces at school in which students may experiment with various tools and materials.

The Paradoxes of Creativity

In this article, I do engage in a kind of celebration of creativity. However, I have no intention of making creativity a universally dominating demand for life or school and work life. It would be absurd to insist that we all be creative all the time. Sometimes, a new practice will manage to stabilise itself so that it will one day act as its own precondition for creativity. It is instead my intention to show that creativity is an integral part of practice and consists of acting in new ways relative to practice – either by changing something or by stabilising itself. In this sense, highlighting the role of improvisation or fooling around in creativity helps identify some of the paradoxes that emerge should one seek to directly urge one's employees or students to be creative.

Creativity cannot always be undertaken on command. Indeed, such commands can actually prevent creativity, causing us to cling inopportunely to our habits when we feel threatened by external pressure. This has been shown by research on organisational learning (Barrett, 1998), theoretically motivated descriptions (Kristensen, 2006), and empirical studies in which one has urged children to be creative (Levin, 2008). Levin describes how children experience pressure as a result of requests for creativity. Interestingly, in these same situations, children tend to reproduce quite conventional understandings of creativity. When the word 'creativity' is told to children, Levin states, they often spontaneously assert that girls are creative at the visual arts whereas boys are creative in the car workshop class. The very word itself can prompt certain types of responses and actions – just not necessarily those that were intended. Requests that we should be creative therefore risk making us less creative, especially if they are built upon an understanding that we can be creative on command.

This does not, however, mean that pressure and necessity never encourage creativity. As the expression goes, 'Necessity is the mother of invention', quite correctly pointing out that a form of inner necessity in a given practice can promote creativity. There is thus a delicate balance between what could be regarded as internal and external practical pressure for creativity.

The most important message might be that we need to move away from considering creativity as something exclusive and only taking place in certain fields, sub-cultures or creativity weeks and instead begin to see creativity as a way of living to be cultivated and learned and in this respect, schools and institutions of education do play a major role in a fast, accelerated, global society.

References

- Amabile, T.M. (1996) *Creativity in Context*. Boulder, CO: Westview Press.
- Barrett, F.J. (1998) Creativity and Improvisation in Jazz and Organisations: implications for organisational learning, *Organization Science*, 9(5), 605-622. <http://dx.doi.org/10.1287/orsc.9.5.605>
- Bilton, C. (2007) *Management and Creativity: from creative industries to creative management*. London: Blackwell.
- Brinkmann, S. (2009) Social kreativitet: at skabe det sociale i en verden uden manuskript [Social creativity: to create the social in a world without manus], in L. Tanggaard & S. Brinkmann (Eds) *Kreativitet fremmende læringsmiljøer i skolen* [Creative learning environments in school], pp. 75-93. Frederikshavn, Dafolo.
- Brinkmann, S. & Tanggaard, L. (2010) Toward an Epistemology of the Hand, *Studies in Philosophy and Education*, 29(3), 243-257. <http://dx.doi.org/10.1007/s11217-009-9164-0>
- Buhl, C. (2010) *Talent* [Talent]. Copenhagen: Gyldendal.
- Cheung, R.H.P. (2012) Teaching for Creativity: examining the beliefs of early childhood teachers and their influence on teaching practices, *Australasian Journal of Early Childhood*, 37(3), 43-51.

- Craft, A. (2005) *Creativity in Schools: tensions and dilemmas*. London: Routledge.
<http://dx.doi.org/10.4324/9780203357965>
- Cropley, A.J. (2001) *Creativity in Education and Learning: a guide for teachers and educators*. London: Routledge.
- Csikszentmihalyi, M. (2006) Foreword: Developing Creativity, in N. Jackson, M. Oliver, M. Shaw & J. Wisdom (Eds) *Developing Creativity in Higher Education: an imaginative curriculum*, pp. xviii-xx. London: Routledge.
- Fasko, D.Jr. (2000-01) Education and Creativity, *Creativity Research Journal*, 13(3-4), 317-327.
- Guilford, J.P. (1950) Creativity, *American Psychologist*, 5, 444-454. <http://dx.doi.org/10.1037/h0063487>
- Hennessey, B.A. & Amabile, T.M. (1987) *Creativity and Learning*. Washington, DC: NEA Professional Library.
- Ingold, T. (2013) *Making*. London: Routledge.
- Ingold, T. & Hallam, E. (2007) Creativity and Cultural Improvisation: an introduction, in E. Hallam & T. Ingold (Eds) *Creativity and Cultural Improvisation*, pp. 1-24. Oxford: Berg.
- Joas, H. (1996) *The Creativity of Action*. Cambridge: Polity Press.
- Joas, H., Sennett, R. & Gimmler, A. (2006) Creativity, Pragmatism and the Social Sciences, *Distinktion*, 7(13), 5-31. <http://dx.doi.org/10.1080/1600910X.2006.9672927>
- Joas, H. & Knöbl, W. (2009) *Social Theory: twenty introductory lectures*. New York: Cambridge University Press.
- Kristensen, J.E. (2006) Kreativitetens Tidsalder? – en idéhistorisk og samtidssdiagnostisk indkredsning, *Dansk Pædagogisk Tidsskrift*, 1, 13.
- Lave, J. (1999) Læring, Mesterlære, Social Praksis, in K. Nielsen & S. Kvale (Eds) *Mesterlære: læring som social praksis*, pp. 35-54. Copenhagen: Hans Reitzels Forlag.
- Lave, J. & Wenger, E. (1991) *Situated Learning: legitimate peripheral participation*. New York: Cambridge University Press. <http://dx.doi.org/10.1017/CBO9780511815355>
- Levin, C. (2008) *Creativity in the School Context*. Lund: Lund University.
- Linge, A. (2013) Svängrum: för en kreativ musikpedagogik. Malmö Högskola.
- Lorentzen, A. (2013) Leisure, Culture and Experience Economy as a Creative Strategy in the Periphery: does North Denmark benefit from the experience economy, in L. Lazzaretto (Ed.) *Creative Industries and Innovation in Europe*. Abingdon: Routledge.
- Mumford, M.D. (2003) Where Have We Been, where Are We Going? Taking Stock in Creativity Research, *Creativity Research Journal*, 15(2-3), 107-120.
- Neergaard, H., Robinson, S., Tanggaard, L. & Krueger, N. (2012) *Pedagogical Interventions in Entrepreneurship from Behaviourism to Existential Learning*. <http://www.isbe.org.uk/Award-Winning-Conference-Papers-2012>
- Nielsen, K. (2009) En Kritik af den Naturaliserede Kreativitet, in L. Tanggaard & S. Brinkman (Eds) *Kreativitetsfremmende Læringsmiljøer i Skolen*, pp. 193-216. Frederikshavn: Dafolo Forlag.
- Nussbaum, M.C. (2010) *Not for Profit: why democracy needs the humanities*. Princeton, NJ: Princeton University Press.
- Peters, M. A. (2010) Three Forms of the Knowledge Economy: learning, creativity and openness, *British Journal of Educational Studies*, 58(1), 67-88. <http://dx.doi.org/10.1080/00071000903516452>
- Pope, R. (2005) *Creativity: theory, history, practice*. Abingdon: Routledge.
- Saltofte Nielsen, M. (2009) Skolen som Potentielt Kreativ Kultur: projektopgaven som case, in L. Tanggaard & S. Brinkmann (Eds) *Kreativitetsfremmende Læringsmiljøer i Skolen*, pp. 123-150. Frederikshavn: Dafolo Forlag.
- Sawyer, K. (2012) *Explaining Creativity: the science of human innovation*. Oxford: Oxford University Press.
- Simonton, D.K. (2013) Teaching Creativity: current findings, trends, and controversies in the psychology of creativity, *Teaching of Psychology*, 39, 217. <http://dx.doi.org/10.1177/0098628312450444>
- Sternberg, R. J. (2006) The Nature of Creativity, *Creativity Research Journal*, 18(1), 87-98.
http://dx.doi.org/10.1207/s15326934crj1801_10
- Tanggaard, L. (2007) Boundary Crossing between School and Work, *Journal of Education and Work*, 20(5), 453-466. <http://dx.doi.org/10.1080/13639080701814414>
- Tanggaard, L. (2008) *Kreativitet skal læres – når talent bliver til innovation*. [Creativity and learning : when talent turns into innovation]. Aalborg: Aalborg Universitetsforlag.
- Tanggaard, L. (2011) Stories about Creative Teaching and Productive Learning, *European Journal of Teacher Education*. 34(2), 217-230. <http://dx.doi.org/10.1080/02619768.2011.558078>

- Tanggaard, L. (2013) The Socio-materiality of Creativity, *Culture and Psychology*, 19(1), 20-32.
<http://dx.doi.org/10.1177/1354067X12464987>
- Tanggaard, L. & Elmholdt, C. (2008) Assessment in Practice: an inspiration from apprenticeship. I, *Scandinavian Journal of Educational Research*, 52 (1), 97-116.
<http://dx.doi.org/10.1080/00313830701786719>
- Tanggaard, L. & Stadil, C. (2012) *I bad med Picasso: sådan bliver du mere kreativ*. Copenhagen: Gyldendal.
- Torrance, E.P. (1972) Can we Teach Children to Think Creatively? *Journal of Creative Behaviour*, 6, 114-143.
<http://dx.doi.org/10.1002/j.2162-6057.1972.tb00923.x>
- Vangkilde, K.T. (2012) Branding HUGO BOSS: an anthropology of creativity in fashion. PhD dissertation, series no. 70, University of Copenhagen.
- Wegener, C. & Tanggaard, L. (2013) The Concept of Innovation as Perceived by Public Sector Frontline Staff : outline of a tripartite empirical model of innovation, *Studies in Continuing Education*, 35(1), 82-101.
<http://dx.doi.org/10.1080/0158037X.2012.707123>
- Zeng, L., Proctor, R.W. & Salvendy, G. (2011) Can Traditional Divergent Thinking Tests be Trusted in Measuring and Predicting Real-world Creativity? *Creativity Research Journal*, 23(1), 24-37.
<http://dx.doi.org/10.1080/10400419.2011.545713>
- Zuckerman, H. (1997) *Scientific Elite*. New York: Free Press.
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