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Bisociation of artistic and academic approaches in problem-based projects

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ABSTRACT

The article presents a theoretical elaboration of the potential relationship between the academic and artistic approaches within a problem-based educational setting. The investigation is based on Koestler's idea of the "bisociation" (blending) of dissimilar thinking and action matrices as the foundational mechanism of human creation in academic discovering, artistic creation, and humour, respectively. On the basis of my own experiences with higher education pedagogy exemplified by a concrete workshop held with students from two different educational programmes at Aalborg University, the article investigates the bisociation of artistic and academic matrices and codes by scrutinising how these apparent incompatibilities could be functions of a blending mechanism. The article proposes that the bisociation of the artistic and academic approaches should be understood as mutual inscriptions leading to an emphasised correspondence between academic abstractions and associative-emotional experiences leading to an increase in complexity, specifically, a multifaceted understanding including an emotional perception of today's societal challenges.

INTRODUCTION

This article deals with artistic approaches as being a part of academic education and research. It is not about artistic research (e.g., Borgdorff, 2010) or art-informed research (e.g. Savin-Baden & Wimpenny, 2014) (albeit there are many affinities, especially with the latter category), but about the meeting between (or even integration of) artistic and academic approaches in academic project work. During the past decades, artistic approaches have become more important for academic problem-based work that promise creativity and lateral thinking. However, these rather lofty

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ambitions lack methodical and theoretical elaborations. The article aims at establishing a theoretical foundation for this field of convergence, acknowledging the historically determined distinction between art and academia (in Western culture). Thus, the article endeavours to theoretically describe possible meeting points.

The article is speculative to the extent that it rethinks an existing conceptualisation within a new context. Concretely, the article takes its point of departure from Koestler's notion of "bisociation", elaborated in his book, *The Act of Creation* (Koestler, 1977). For Koestler, any act of creation presupposes a contact of a kind of two different matrices of understanding and experience. His notion of creation, defined as the resolution or simultaneity of seemingly incommensurable matrices of understanding, urges me to ask whether I can use Koestler's theory of bisociation to conceive of a (theoretical) integration of artistic and academic approaches. There is an increasing body of publications and artistic research projects that is taking up this challenge, which Borgdorff describes as "an uneasy relationship" (Borgdorff, 2008). The underlying premise is that art and academia constitute epistemologically incommensurable frameworks (creating different matrices in Koestler's wording). At least, this is the underlying assumption of the societal institutions and many stakeholders representing these two domains. This situation makes Koestler's approach interesting.

Admittedly, thinking within Koestler's conceptualisation made up of matrix and code inevitably excludes not only other concepts of creation, but also other dimensions of the integration of artistic and academic approaches that cannot be subsumed under the notion of creation (such as documentation or dissemination). This means that only a certain type and certain parts of artistic-academic project can be captured and not others.

THE EDUCATIONAL CONTEXT

The academic and educational context for this article is Aalborg University's bachelor programme of Art and Technology, which is based on the pedagogical form of problem-based learning. Problem-based learning has two main features relevant for my thinking: group work and problem orientation (see, for example, Holgaard, Ryberg, Stegeager, Stentoft, & Thomassen, 2014; Kolmos, Fink, & Krogh, 2004; Qvist, 2004). For my purposes, project-related group work specifies that the incorporation of artistic approaches into academic work does not aim for the emergence of a new all-encompassing method, but rather that academic and artistic discourses are in constant dialogue, challenging each other towards the creation of 'responses' to a posed problem. In fact, this could be done by one person; in most cases, however, group members represent different positions and thinking and action matrices. Introducing artistic approaches to problem-based group work poses a lot of questions. For example, is the artistic approach linked to specified persons within a group and

how does the group evaluate artistic ideas and methods in relation to problem-based processes? This article will propose a theoretical model that can be used to elaborate on these and similar questions, but it does not specifically deal with such issues. The second feature —investigative work is based on a defined or definable problem—stipulates that project work takes its starting point in existing, often societal challenges. This does not mean that the only objective is implementable solutions; rather, it means that the project must be reflective about the envisioned outcome in relation to the problem posed, regardless of whether this is a realistic solution or an investigation into the very nature of the challenge. The article will elaborate on how artistic approaches can further processes of problem elaboration and solution finding by adding methodologically and epistemologically very different dimensions to academic inquiry.

The concrete experiential and pedagogical contexts framing my theoretical elaborations are a workshop, which a colleague from engineering (Professor Lone Kørnøv) and I developed and held for students of Art and Technology (ArT) and Environmental Management and Sustainability Science (EMSS), the latter being an engineering programme and the former part of the humanities. Both are interdisciplinary programmes. ArT is working with both artistic approaches and methods form the humanities, EMSS with methods from engineering and social sciences. The incipient idea of the conducted 1-day workshop was to orchestrate a meeting between two different research discourses around a specific societal challenge: What to do with 30 tons of PVC waste left after a major week-long music festival? Every year, the festival participants of Roskilde Festival in Denmark leave approximately 30 tons of worn-out airbeds that cannot be recycled, but only disposed of in a landfill. The workshop included an evaluation session at the end and a questionnaire handed out to the students. I will mainly focus on the resulting concept of one group. My experiences and observations of the workshop and the resulting student ideas serve as a concrete manifestation that my theoretical investigation uses as a kind of sounding board. But my investigation is not an empirical one, it is not a case study, rather the student projects form a thinking platform, a kind of interlocutor constantly questioning my theoretical advancements.

THE SOCIETAL FUNCTIONS OF ART AND SICENCE

The cultural distinction between artistic and academic endeavours seems to be a result of *a priori* laws of human epistemology. To put it boldly, only the objectives of science and academia appear to be epistemological ones, namely, the gaining of knowledge qua cognisance, whereas the arts seem to be characterised by the production of human aesthetic expressions that are primarily aimed at stimulating the imaginative and emotional experiences, serving various purposes ranging from mere entertainment to cleansing (catharsis) and edification. The distinction between art and academia[1] is epitomised by the establishment of different societal institutions. In Western societies,

[1] My usage of the term academia entails all sciences including the human sciences and liberal arts (humanities). From the renaissance on, the liberal arts became an analytical study and no longer a practical one. The fact that the arts in

there are universities, research departments and ministries of science and innovation, and then there are art museums, theatres, art academies and galleries.

However, the aforementioned difference is a historical one, and thus, a contingent one. The distinction between art and academia has emerged in nascent modernity, in which art and academia came to serve distinct societal functions.

This development reached its culmination during the 18th and 19th centuries, in which aestheticism and romanticism were understood as a reaction to science, which relied on rationalist, generalisable methods and modes of argumentation, and also to industrialisation being an outcome of this scientific discourse (see, for example, Bourdieu, 1996). During this period, the societal function of the arts was to create an (aesthetic) counterbalance to the industrial revolution and scientific approaches characterised by increasing methodological rigour in terms of experimental validation, causal-logical argumentations and general applicability.

Concurrently, merchants, bankers, and manufacturers took over economic and societal powers, resulting in the proliferation of a labour rationale that valued productive work (well supported by Protestant morality). In his book *The Rules of Art* (1996), Bourdieu describes the social conditions necessary for the rise of the arts as an autonomous aesthetic domain. The arts took on compensatory, aesthetic functions such as the production and representation of beauty and the sublime, and the creation of fictitious realms on the basis of imagination. System theorist Luhmann (1997) describes this as a functional differentiation of the system of art, which occurred in the 17th and 18th centuries. Art, he claims, became more and more self-reflective and established its own code and communication form. During idealism and romanticism, art focused on beauty as a subjective judgement and as an expression of the feeling of an unachievable ideal that yields both pleasure and the feeling of loss (Luhmann, 1997, p. 286).

During that period, the separation between the humanities and natural science also became more distinct. The humanities found themselves in a difficult position, because they needed and wanted to adhere to scientific standards of, for example, categorisation and systematisation, and at the same time, elaborate on topics that defy systematisations. Kant's *Critique of Judgement* is a splendid example of a systematic elaboration of the human faculty of aesthetic judgements, which by his own account, are immediate and intrinsically subjective and thus seem to evade any systematisation. When talking about art, the philosopher Kant takes a reflective, descriptive stance by asserting that beautiful (aesthetic) art is the result of a transcendence of human intentionality. The act itself cannot be described or planned. Up to today, many disciplines of the humanities have become more and more scientific in terms of the application of standard methods of investigation, data collection, and

many countries have come part of the university system, can be seen as an indicative for the reverse development, sustaining an ongoing integration of the arts within research institution and methodologies.

data interpretation, and argumentation and dissemination formats. Speculative investigations á la Nietzsche's writings are no longer possible (or are not counted as part of academia).

My short introductory, genealogical spotlight is meant to prepare the discursive grounds for an envisioned integration of artistic and academic methods. I claim that the distinction between what we today call artistic practice and academic discourses is a historically constructed one, more precisely, a modern one. That means that there are no logical reasons why artistic and academic approaches cannot be combined.

RECIPROCAL RAPPROCHEMENTS

Over the course of the 20th and the beginning of the 21st centuries, the humanities and social sciences (and increasingly also the natural sciences and engineering) not only have embraced the heterogeneity of their subject fields and the unavoidability of the researcher's subjectivity as a part of the research findings, they also have acknowledged that science generates its research fields. Knowledge is no longer only the result of discoveries, but is (also) seen as constructions: not only conceptual constructions (theories), but more and more, the constructions of materials and intelligence as well (see, for example, Latour's (1999) elaborations and the field of artificial intelligence and robotics). In contrast, art in modernity has never claimed to produce anything other than overt and communicated constructions in the form of artistic creations (literary or filmic fictions, installations, pictorial representations, drama, etc.). Furthermore, works of art in modernity have never claimed to capture reality per se, but instead to say something about the variety of human sensations and perceptions of life, and more and more, about the possibility of variations and the mere potentiality that lies within creation as well. Here, I am thinking about the different avant-garde movements and their legacies.

Today, the scientification of the humanities is counteracted by a growing expansion of permissible methods, thus allowing art and artistic approaches to also play a role in the academic community. There is an increasing number of publications advocating for artistic research, arts-based research or arts-informed research (e.g., Sullivan, 2010).

Nevertheless, due to the momentary socio-functional distinction between art and academia, the methodical— and thus also epistemological—expansion of academia will not come easy. A brief handhold semiotic investigation of often-cited texts dealing with artistic research and art-based research shows a classificatory scheme in which certain keywords are used to characterise artistic approaches and academic discourses, respectively. Words describing the arts are, for example, "subjective", "particular", "unique", "tacit knowledge", "materiality and immateriality", "emotion", "intuition", and "evocative". On the other hand, terms describing academia are "reason",

"normative", "explanatory", "validity", "verification" "exact knowledge", "formal statements", "evidence", and "generalization". These terms are used by Borgdorff (2008), Eisner (1981) and Wilson (2002). From academia (especially the sciences), we expect a formalised investigation through agreed upon methods leading to an (at its best) exclusive interpretation of the found data. On the other hand, art allows for inherently subjective and singular expressions that favour complexity and heterogeneity in its investigation and reception, which in principle is purposeless. Art is not obliged to come up with solutions to defined problems. On the contrary, art, at its best, creates problems. To mention an often-uttered expression: Art pieces produce non-trivial questions. The described historical development has created a sense of incompatibility between art and academia, despite the fact that both academia and art show a huge variety of forms, methods, objectives and results. Even in the branches of the humanities dealing with art and aesthetics (art history, dramaturgy, music, etc.), the demarcation line between academic scholar and artist has been upheld for a long time, thus favouring hermeneutical research. However, during the last decades (depending on the particular national policies for science and art), there has been a call for inter- and even transdisciplinary collaboration. The "crisis of representation" (Adams, Jones, & Ellis, 2015) and the subsequent surfacing of explicitly subject-based methods of enquiry, such as autoethnography, which takes the researcher's lived experiences as the empirical starting point for critical analysis, obviously have made this collaboration thinkable and operational. On the other hand, this incipient collaboration is also one outcome of the demand for additional research methods, satisfying new societal demands posed to and by academia. These demands are, for example, implementable solutions to societal problems, which necessitates that the mutual influences of multiple facets, such as the cultural, physical, technological, emotional and subjective ones, be addressed in order to create sustainable solutions. Artistic processes and artefacts can be one means to operationalise the subjective and emotional aspects of data collection and solution design and implementation. Evidently, this necessitates different types of research and educational projects compared to mono-disciplinary ones, for example, projects that address the public or certain groups of people in an effort to turn them into participants.

THE CONCEPT OF BISOCIATION

Koestler investigates the nature of creation. Written more than 50 years ago, he claims that creation is an act of bisociation brought about by the meeting of two different conceptual spaces. Creation is an event of clashing, blending or oscillating. He investigates three forms of creation: humour, science, and art. Hence, he follows the socio-cultural divide between art and science, contending that these human endeavours of creation are different in their processes and objectives. In this article, I will only deal with his conceptualisation of science and art as occurrences of bisociation.

Koestler's (1977) basic idea is the existence of different conceptual spaces defined by codes and matrixes. Conceptual fields are unified "formulas" or "matrices of thoughts (and matrices of behaviour)" (p. 39). "The matrix is the patterns before you, representing the ensemble of permissible moves. […] The code is the fixed, invariable factor of the skill or habit; the matrix its variable aspect" (p. 40). He makes metaphoric use of a game as a confined possibility space framed by rules in order to be able to work with different matrices and sets of rules. This allows him to theoretically play with the possibility of new emergent conceptual spaces or conceptualisations. Examples of matrices of thoughts are mathematics, which conceptualises the world through numbers and operational formulas; or materialism, which sees the world as acts of matter. Koestler's starting point recalls Kuhn's scientific paradigms (Kuhn, 1996, p. 44), albeit Kuhn's notion is more open, in that it is not entirely dependent on rules and assumptions. On the other hand, Koestler's notion also bears similarities with Bourdieu's habitus, as the bodily incorporation of disposition; in Bourdieu's case, social dispositions, and in Koestler's case, the dispositions of domains. For Koestler, dispositions are codes as "hidden persuaders" (Koestler, 1977, p. 42), shaping perception, muscular skills and visceral activities.

SCIENTIFIC CREATION

Koestler claims that scientific discoveries are the outcomes of the fusion of two different matrices. Parts of a scientific problem of one matrix are suddenly seen as part of another matrix (which is not necessarily a scientific one). The scientific problem is seen in the light of another domain. Koestler proposes that bisociation as fusion occurs as an unconscious process on a "lower level of mental hierarchy" (Koestler, 1977, p. 168), where pictorial similarities constitute the field of convergence. Aesthetic vagueness forms the bridge between the matrices. Sudden recognitions of similarities (analogies) are experienced as epiphanies. One of Koestler's examples is the invention of the printing press: "'The ray of light' was the bisociation of wine-press and seal—which added together become the letter-press" (Koestler, 1977, p. 122). The underlying point of bridging similarity was the very picture of pressing.

Koestler's theory captures a certain type of research that is characterised by discovery as a solution to a defined problem. Some scholars emphasise the occurrence of bisociation as epiphany or leap. Koestler describes this as "the spontaneous flash of insight, which […] connects the previously unconnected frames of reference and makes us experience reality at several planes at once." (Koestler, 1964, p. 45). Creation is here seen as recognition encapsulated in the solution of an (often technical) problem. In my opinion, this is a romanticising view of academic creation. However, Koestler himself writes in a more differentiated way that, "it [the discovery] may emerge suddenly, sparked of by an individual discovery; or gradually, as on the history of electromagnetism, where a series of individual discoveries acted as 'links'" (Ibid, p. 253). Today, however, academic creation

also contains activities such as mapping, simulation and the production of methods, as well as action research and critical theory, which aim at empowering groups of people towards changing an oppressive or unfortunate situation. Does the concept of "hidden analogies" only address a very narrow range of academic challenges? Obviously, this is a question for a more general discussion of academic methods and creations.

Here, I want to concentrate on the possibility of using artistic approaches in an academic, problem-based setting. There is a difference between historic scientific insights on a global level and insights that might have a big personal impact. What interests me here, is the personal significance of bisociation, those rather small flashes of insight. As already referenced, Koestler explains that scientific bisocation (fusion) necessitates a lower level of abstraction in which concrete pictorial (and dynamic, I would add) representations dominate. This is the realm of aesthetics and day dreaming, in which (scientific) reason regresses to older forms of ideation, allowing for a combinatory play of and with vague pictures. If a new combination suddenly rises to a higher level of abstraction, a new idea, comprehension, or even discovery is surfacing. Undoubtedly, the development of aesthetic competences has an impact on learning and on intellectual and creative work, as many studies claim and document. For example, a study on the benefits of music for learning in this very journal (Lindvang and Beck, 2015). Further, there are anecdotal accounts of prominent scholars who are highly interested in art or even in playing the violin (Einstein).

What is of interest here, though, is not the educational or inspirational effects of aesthetics within academia, but the description of an altered framework for university teaching and research that supports the emergence of novel types of research projects. To express this as questions: What kind of theoretical basis does the bisociation of academic discourses and artistic approaches generate? And what kind of research projects could this theory support? I am aware that the last question is posed upside down, because we normally do not ask what theories could prospectively yield, but how we can theoretically understand the existing world and its phenomenon. Still, theories are always world constructions that open up thinkable realms and practices, which can possibly change our lifeworld. My hope is precisely that artistic approaches within problem-based academia can contribute to solutions and elaborations that can elucidate some of the black holes of academia. Here one can turn to what Koestler has to say about artistic creation.

ARTISTIC CREATION

The backdrop for his elaborations on artistic creation seems to be an art that distinctively positions the audience as contemplating recipients. Recipients are not active agents in the unfolding or creation of a work of art. Koestler never refers to interactive or participatory forms of art (that has only gained currency in recent decades). However, Koestler claims that the recipient is psychologically (emotionally and intellectually) participating. Koestler understands the creation of art not through the *poietic* act of the artist, but through the *aisthetic* act of the recipient.

Additionally, Koestler bases his enquiry of artistic creation on a fundamental scheme of thought, which comprises what he identifies as natural hierarchy: At the bottom, there is the individual (human being, cell, or other entities), and at the top, there is a social constellation (society, body, or material) comprised of these individuals or smaller units of individuals (e.g., families, organs) (Koestler, 1977, p. 288). Thus, the individual is both an autonomous entity and a functional unit, a "sub-whole" in a bigger system. Koestler takes this double existence as the very foundation of artistic bisociation: Art exhibits self-asserting and participatory tendencies (Koestler, 1977, p. 307). On the one hand, the recipients are projecting themselves into the social realm, a work of art emanates (by means of, for example, empathy with a dramatic hero or identification with a Greek statue), hence being a part of a community and its rules, costumes, etc. On the other hand, the recipients exert a self-asserting tendency allowing them to interpret and also judge the work of art as individuals. In his conceptualisation, a work of art creates a cognitive and perceptual distance, because it points to its own fictional and illusionary being, which is the requirement for this kind of bisociation to be played out. Not surprisingly, Koestler sees the very foundation of bisociation, namely the distinction between matrix and code, unfolding in art reception. The matrix constitutes the self-asserting dimension, in which the recipients find their own perceptual and interpretative way through the work of art; the code is the fixed framework that allows the recipients to experience being part of something bigger. Koestler calls the latter "symbiotic communion" (299). This recalls Nietzsche's elaboration of the Dionysian force in Greek tragedy, in which the members of the chorus become part of the initial force behind the dramatic manifestations on stage and all "real" life occurrences as a dreamlike illusion. "Tragedy in the Greek sense, is the school of self-transcendence" (Koestler, 1977, p. 307).

For Koestler, the fictional and illusionary character of art initiates the bisociation of the two matrices. It contrasts the bodily felt reality of the recipient, and its occasional dissociation of reason (on occasions of immediate engendered reaction) with the lightness of "self-transcending emotions" (p. 305); this removes the recipients from themselves and provides space for contemplation. This form of bisociation, which Koestler characterised as revealing fate as variability, contains the

potentiality of catharsis, which shows itself as complex emotions such as awe or internal, relieving and sympathetic "weeping".

> "Thus the act of participating in an illusion has an inhibiting effect on the self-asserting tendencies and facilitates the unfolding of the self-transcending tendencies. In other words illusion had a cathartic effect—as all ancient and moderns civilizations recognized by incorporating various forms of magic into their purification-rites and abreaction therapies" (Koestler, 1977, p. 303).

CONVERGENCE POINTS

My condensed presentation of (some aspects of) Koestler's artistic bisociation shows two things: First, his elaborations focus on art's internal composition in light of its reception and effect on the recipient, not in light of production and art's poietic aspects. Second, his writings seem to advocate one type of art, which positions the recipient in very distinct way as a contemplative participant, who is sensing and interpreting a piece of art. I am, on the contrary, interested in the creational artistic act, in the conception and formulation of an idea and the material unfolding of a piece of art. Moreover, I am interested in the cross-field in which art conception and academic problem-solving meet.

This does not mean that I cannot make use of Koestler's conceptualisation. There are at least two important points that will help me in formulating a bisociation of the artistic and academic approaches. First, it is important to remember that artistic approaches work with the creation of fiction (and sometimes also illusions), thereby instigating a distinction between everyday reality, and what I, like Luhmann (2000), call imaginary reality. In my understanding, the notion of imaginary reality spans over illusions and fictions presented by, for example, novels, theatre plays, science fiction movies, and materialised ideas in the form of art installations and participatory events. Of course, there is a huge difference between computer-generated movies and participatory art events, but both work with the conception of "worlds of Then and There" (Koestler, 1977, p. 306). A first approach could be that academic-artistic projects—within a problem-based setting—work with or through the conception of changed/changeable realities. The term reality could entail the human life-world in its entirety, but in most cases connotes a situation, a setting, the context of a specific problem, etc. I will come back to this.

The second point is more difficult. Koestler claims that the blending mechanism of scientific discoverings is mediated by more basic, aesthetic forms of human ideation, for example, pictorial representation. When talking about artistic revelations, he makes the contrary move. The contemplative distance of the recipient of a work of art allows not only aesthetic partaking, but also

interpretation and reflection ("higher mental activities", Koestler, 1977, p.305), thus combining primary emotions with reasoning. It seems that one meeting point between the artistic and academic matrices could be the regression of higher mental discourse to aesthetic forms, where the aesthetic dimensions of artistic expressions hypothetically act as the catalyst and trigger for academic discovery. The other meeting point could be found in the act of the sublimation of the art recipient's immediate impulses to act, generating an aesthetic tension between "self-asserting" and "self-transcending" forces. In this tension, the higher faculty of reasoning could play a bridging role in academic discourses by adding dimensions of feeling oneself as part of a system or even as an organism yielding emotional understanding and even compassion (all possible effects of "symbiotic communion").

Above, I have identified possible points of contact between academia and art within the framework of Koestler's conceptualisation. Remember, the overarching objective of PBL is the creation of knowledge, artefacts or events as elaborations of (not necessarily solutions to) societal challenges. My next step will be to consult the student project briefly described in the introductory sections of this article and to consider whether my theoretical extrapolations are promising. My application of Koestler's bisociation concept is the prism through which I will analyse the students' artefacts and projects. Because I have not chosen an empirical method, my personal unstructured observations—supported by my own experiences with artistic-academic projects—serve as a form of clarification of my theoretical claims, hopefully eliciting modifications and refinements of my theoretical claims. Hence, my examples could seem chosen to fit my theoretical claims. And indeed, this is true. However, I am not aiming for an all-encompassing model of possible integrations of artistic and academic approaches in learning environments (which is impossible); I am trying to find some theoretical and methodological meeting points between the two matrices that might allow the prospective formation of didactic and pedagogical measures for a fruitful integration of artistic and academic approaches.

A GRAVEYARD OF AIRBEDS

The one-day workshop brought together students from Art and Technology and students from the engineering programme, Environmental Management and Sustainability Science. The main part of the workshop consisted of interdisciplinary group work. All the groups included students from both programmes. The students were given the task of discussing and devising potential solutions to or somehow tackle the problem of the 30 tonnes of airbeds. The framework of the workshop included an introduction to the two programmes and their overall aims and a set of dogmas specifying, first, that the aim of the workshop is the production of solution concepts and, second, that the concepts should be based on synergies of both programmes' DNA. There were no directives given determining the kind or form of solution nor the process as such. In order to be able to discuss and negotiate possible concepts, the students had to find a common language. This was the main

objective of my research interest in the workshop. How will the students deal with the assumed incommensurability of the two approaches?

Both groups of students were familiar and experienced with problem-based group work, albeit not in this interdisciplinary setting. Problem-based group work, as a learning situation, constituted a known framework supporting the process and possible collaborations between the group members, stipulating the expectations and possible outcomes (see, for example, Holgaard et al., 2014). Furthermore, the workshop was not directly linked to any examination, which allowed a playful attitude and conceptual and pedagogical freedom. Yet, the workshop could not harbour a full-fledged material realisation of the resulting concepts. At least artistic research paradigms (and many design and engineering projects) focus on the perpetual learning and discovery process during the production and material realisation of incipient ideas (see, for example, Scrivener, 2000). In this case, the bisociation process occurred (if at all) in the ideation phase.

For me, the most intriguing concept produced by one of the groups was the idea of a circularly arranged graveyard somewhere in the festival area consisting of a smaller number of graves. The graves would be covered with glass plates showing the airbeds in open coffins. The inscription would show the date of birth and death of the airbeds (often only several days of use) and the expected decomposition times ("PVC does not readily degrade and when it does it gives off a number of toxic materials"[2]). As such, the idea is rather simple. Seen from an artistic perspective, the idea alludes to works of art that present processes of decay (for example, Lemmerz' work *Scene* (1994) showing decaying pigs in exhibition cases) or, on the contrary, processes of preservation (for example, Hirst's *The Physical Impossibility of Death in the Mind of Someone Living* (1991) showing a tiger shark in formaldehyde. The concept theatrically and anthropomorphically stages the fate of this material, which is to be dumped in a landfill. The idea simultaneously works on an emotional, associative level and on a factual, documentary level. Graveyards and mausoleums are associated with funerals and grief. The airbeds are re-contextualised, estranging both airbeds—normally useful leisure objects— and human graveyards as sacred places of passage and transcendence. Everyday goods are shrouded with an atmosphere of human loss and holy transcendence. The staged situation is both ridiculous and sad. Seen from a purely scientific, engineering perspective, the idea does not contribute much to the solution of this problem, if we understand this as the development of new materials that could replace PCV or the formulation of laws and rules the prohibit the use of PCV in the fabrication of goods. The graveyard concept 'only' states that at this moment in time, PVC products cannot be decomposed, but can only be buried.

[2] http://www.brighthub.com/environment/green-living/articles/107380.aspx

NEXUS POINTS

Once again, it is important to recognize that the problem-based learning environment is a distinct setting that shaped the workshop, my educational experience, and therefore, also my theoretical assertions. Problem-based (or problem-elaborating) projects are fruitful arenas for the nexus between the artistic and academic approaches, because such projects are aimed at tackling societal challenges (that are surfacing independently of academic or artistic disciplines) and therefore often embrace the elaboration and operationalisation of multiple perspectives. Experiences with other settings would possibly change my theoretical elaborations.
So, back to my intermediate questions: Do the students' workshop projects confirm the theoretically identified linkages between artistic and academic matrices and how could those meeting processes be characterised?

During the evaluation session of the workshop (and in the questionnaires handed out after the workshop), the students expressed their surprise that the collaboration between the different students was not as difficult as expected, but that their respective approaches differed extensively. The Art and Technology students confirmed that the other students took their factual knowledge (about PVC as a material, its processes, advantages, and environmental disadvantages) as their starting point. The Engineering students characterised the Art and Technology students as persons spitting out—sometimes "crazy"[3]—ideas about how to use, transform, and decontextualise airbeds as products with distinct purposes: ideas such as huge clouds of airbeds sewed together hovering above the festival area as a sunshade, rain cover, or just as a strange, menacing object, or as tents and clothes fabricated out of used airbeds. These ideas are the upshots of associative, quite pictorial encounters with the material and the context that, in one way or another, provide unknown applications and bodily experiences. In imagining the idea of PVC suits, I do not think it would feel very pleasant, but rather heavy and sweaty on one's body.

The point of nexus is the concrete idea or the aspects of this idea that produce concrete impressions (for example, conceptual images, events, or even sounds). On the one hand, a concrete pictorial concept can be considered to function as a mutual inscription into the two different, but intersecting matrices. The academic matrix interprets the conceptual image as a representation of facts or the result of a scientific investigation. In the case of the above-described airbed graveyard, the graves illustrate known facts, such as decomposition time and disposal. On the other hand, a concrete conceptual image always elicits tactile and/or proprioceptive and emotional reverberations. As already mentioned, the graveyard will most likely be associated with funerals, grief, transcendence, etc. The associative images function as a kind of passage that allows either the artistic or academic features to be conveyed. Now, academic facts are associated with aesthetic reactions, and vice versa, complex, aesthetic emotions enclose academic knowledge. The bisociation of the artistic and

[3] As stated in one of the questionnaires.

academic matrices does not necessarily yield aesthetic tensions and ambiguous emotions such as awe, beauty, nostalgia, etc. (as in the case of art), nor does it necessarily yield a new conceptual space as the resolution of bisociative differences (as in the case of science). But it creates multiple––associative—linkages that constitute a category proper. Again, this category does not refer to a specific art form or artwork, nor does it supposedly lead to new scientific discoveries. Instead, it should be considered a particular creative practice within problem-based project work.

During the oral evaluation session of the workshop with the students, some reported one incident that, for them, was noteworthy. An engineering student referred to one finding within decision-making theory, namely that in order to be effective in terms of behavioural change, it is important to relate the constituents of a desired change to the everyday context of people, i.e., to something that is close. One Art and Technology student took up the notion of closeness and associated a dress made out of the airbeds, simply because a dress is very close to a person's body. The incident is not spectacular, but rather modest: the notion of closeness. However, it was a point of nexus between the two different matrices: a transformation of an academic generalisation to a concrete creative idea. For my elaboration, it is not important to judge whether this particular idea is of artistic value or not. I am solely interested in the meeting point, which must be able to harbour dimensions of both matrices or connect various points of both matrices.

SYMBOL OPERATIONS – EMOTIONS

Bisociations of artistic and academic matrices are a methodical practice that combines concepts with emotions and vice versa. Deacon, in his article "The Aesthetic Faculty" (2006), elaborates on Koestler's notion of bisociation by asking how two different conceptual matrices can blend and, moreover, how the blending can link cognition and emotions. Deacon's argumentative prerequisite is his assertion that humans have developed the capacity of play. Play is possible because we have learned to act and communicate by means of symbols. Symbols are not only indexes, they are potentially polyvalent and can refer to more than one object and also refer to other symbols. The usage of symbols brought about an emergent capacity. This "synergistic" (Deacon, 2006, p. 33) capacity of symbolic tokens is precisely the nexus between two conceptual planes (matrices). Deacon's approach presupposes that the matrices in question consist of representative symbols that are linked to "perceptual-emotional gestalt" (p. 34) and are part of a network of associated terms enabling the network's combinatorial possibilities. To link or blend two matrices, one needs to establish a re-presentation of this blend, a re-representation involving symbols (and not iconic or indexical mappings). According to Deacon, symbolic re-representations (blends) allow for a taxonomy of relations that eventually elicit Koestler's three basic emergent emotions (release (humour), catharsis (art), and eureka (science)).

Deacon's theoretical ambition is to incorporate emotions into the concept of bisociation (and also to the successive conceptual blending theory of Faucconier and Turner (2002)). Deacon (2006) presupposes that

> "[e]motion cannot be dissociated from cognition. It is the attached index of attention relevance in every percept, memory, or stored motor subroutine. Emotional tone is the *prioritizing marker* attached to every cognitive object that enables an independent sorting of it with respect to other competing cognitive objects, irrespective of pattern-matching processes" (p. 37).

According to the psychologist Frijda (2006), emotions are states of "action readiness" (p. 38) within an always actual context composed of perceptual impulses and incorporated meaning structures. For Deacon, cognitive processes, such as the interpretation of symbols or any semantic entity, are linked to emotional states and experiences. That is the way bisociated or blended conceptual spaces have the capacity to amalgamate different emotions into complex, composite emotional experiences such as beauty, awe, nostalgia, etc. This "is clearly one of art's great attractions. It is literally an exercise in expanding the space of consciousness" (Deacon, 2006, p. 51).

Something analogous occurs in the integration of artistic and academic approaches that is in the bisociation of different conceptual spaces (such as the generality of academic notions and the concreteness of images and artefacts). The benefits of this form of bisociation are perhaps not the complexity of the resulting emotions (although this might emerge), but rather the emphasised conjunction between higher cognitive abstractions and their multiple and polyvalent correlations with emotional experiences, in other words, the expansion of emotional-cognitive states.

Above, I identified the notion of "closeness" as the nexus point between one concrete academic theory and a concrete-artistic idea. Closeness is not a symbol, but a semantic marker. Yet in the perception of the conceptual idea, a PCV suit becomes both a concrete token for an imagined experience (hot, heavy, and squeaking) and a symbol for unsustainability, pollution, unintelligent consumption, festival life and fun, etc. The emotional experience of the PVC suit combines a more or less abstract concept (e.g., sustainability and its challenges) and personal recollections, which have their own correlated bodily sentiments and emotional values.

CLOSING REMARKS

In this article, I have ventured to expand Koestler's bisociation theory to describe the integration processes of artistic and academic methods. As indicated in the opening section, my elaborations are mainly of a theoretical nature with the inherent objective of making my elaboration operational in respect to didactic and pedagogical forms. I also consider the problem-based project format to be

beneficial for the meeting of the artistic and academic approaches. As closing remarks, I want to outline some possible requirements that might support the aforementioned integration. The focal point of this article does not allow for a more thorough elaboration of the practical implications of my theoretical claims.

First, it is pointless to consider a whole problem-based project as one long meeting between academic discourse and artistic practice. The meeting points must be chosen, framed and staged. Evidently, this depends to a great extent on the character of the project and its objectives. Does the project in question aim towards realisable solutions or towards an elaboration of a problem or a complex of problems? Is the project based mainly on academic approaches, and if yes, what disciplines and methods are predominant, or is the project's outcome driven mainly by artistic investigations? Depending on these characteristics, the meeting between the two different approaches must be prepared and staged. For example, one must decide about the point in the process at which the meeting is most promising: in the beginning of the entire process supporting the idea generation stage, or rather, during the concretisation phase, in which particular implementations must be created. Several meeting sessions would secure an integrated process. More importantly, the meeting sessions must be orchestrated properly. Artistic approaches are often based on fictionalisation (or in Iser's (1993) term, irrealisation), which allows a much more unlimited unfolding of associative and subjective ideas and material elaborations than those allowed by the much stricter application of academic methods and validations. This irrealisation space must be created, its beginning and end determined and secured by all the participants. The same goes for academic validity, which must be dealt with in this irrealisation space. Facts cannot be neglected, but should be discussed, contextualised, materialised, visualised, opposed, etc.

Second, the expansion of abstract academic notions with emotional and associative content as a result of the simultaneity of the academic and artistic matrices necessitates a willingness to allow and explore novel forms of research and educational projects, whose resulting forms are not necessarily aligned with either works of art or academic forms of presentation and dissemination (books, articles). Therefore, the ongoing reflection on and final choice of suitable presentation formats and venues should be a part of the process from the very beginning.

References

Adams, T., Jones, S. H., & Ellis, C. (2015). *Autoethnography*. Oxford: Oxford University Press.

Borgdorff, H. (2008). Artistic Research and Academia: An uneasy Relationship. *Årsbok konstnärlig FoU*, 82–97.

Borgdorff, H. (2010). The Production of Knowledge in Artistic Research. In M. Biggs & H. Karlsson (Eds.), *The Routledge Companion to Research in the Arts*. London, New York: Routledge.

Bourdieu, P. (1996). *The Rules of Art. Genesis and Structure of the Literary Field*. Cambridge: Polity Press.

Deacon, T. (2006). The Aesthetic Faculty. In M. Turner (Ed.), *The Artful Mind* (pp. 21–53). Oxford: Oxford University Press.

Eisner, E. W. (1981). On the Differences Between Scientific and Artistic Approaches to Qualitative Research. *Educational Researcher*, *10*(4), 5–9.

Faucconier, G., & Turner, M. (2002). *The Way We Think: Coceptual Blending and the Mind's Hidden Complexity*. New York: Basoc Books.

Holgaard, J. E., Ryberg, T., Stegeager, N., Stentoft, D., & Thomassen, A. O. (2014). *PBL-Problembaseret læring og projektarbejde ved de videregående uddannelser*. Frederiksberg: Samfundslitteratur.

Iser, W. (1993). *Das Fiktive und das Imaginäre*. Frankfurt a. M.: surkamp.

Koestler, A. (1977). *The Act of Creation*. London: Pan Book
.

Kolmos, A., Fink, F. K., & Krogh, L. (2004). The Aalborg Model - Problem-Based and Project-Organized Learning. In A. Kolmos, F. K. Fink, & L. Krogh (Eds.), *The Aalborg PBL model*. Aalborg: Aalborg Univerity Press.

Kuhn, T. S. (1996). *The Structure of Scientific Revolution*. *Economy and Society* (Vol. 29). Chicago: University of Chicago Press.

Latour, B. (1999). *Pandora's Hope*. Cambridge, London: Harvard University Press.

Luhmann, N. (1997). *Die Kunst der Gesellschaft*. Frankfurt a. M.: Suhrkamp.

Luhmann, N. (2000). *Art as a social system*. Stanford, CA: Stanford University Press.

Qvist, P. (2004). Defining the Problem in Problem-based Learning. In A. Kolmos, F. K. Fink, & L. Krogh (Eds.), *The Aalborg PBL model*. Aalborg: Aalborg University Press.

Savin-Baden, M., & Wimpenny, K. (2014). *A Practical Guide to Arts-Related Research*. Rotterdam. Boston,Taipei: Sense Publishers.

Scrivener, S. (2000). Reflection in and on Actions and Practice in Creative-Production Doctoral Projects in Art and Design. *Working Papers in Art and Design*, *1*. Retrieved from http://www.herts.ac.uk/research/ssahri/research-area/art-design/research-into-practice-group/production/working-papers-in-art-and-design-journal. /

Smith, H., & Dean, R. T. (2009). *Practice-led Research, Research-led Practice in the Creative Arts*. Edinburgh: Edinburgh Univerity Press.

Sullivan, G. (2010). *Art Practice as Research : Inquiry in Visual Arts*. Thousand Oaks, CA: Sage Publications.

Wilson, S. (2002). *Information Arts: Intersections of art, science and technology*. *Information Arts Intersections of Art Science and Technology*. London, Cambridge: MIT Press.